ROSTOVTSEV, S.T."

"Some Questions of Kinetics and Mechanism of Reduction of Iron Oxides by Hydrogen, Carbon Oxide and their Mixtures," lecture given at the Fourth Conference on Steelmaking , A.A. Baikov Institute of Metallurgy, Moscow, July1- 6, 1957

137-1958-2-2339

Rostovtsev, S.T.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 19 (USSR)

AUTHOR Rostovtsev, S.T.

TITLE Some Features of the Mechanism and Kinetics of the Reduction of Iron Oxides (Nekotoryye osobennosti mekhanizma i kinetiki vosstanovleniya okislov zheleza)

PERIODICAL V sb.: Fiz.-khim.osnovy proiz-va stali. Moscow, AN SSSR, 1957, pp 191-200. Diskus. pp 332-334

ABSTRACT: It was ascertained experimentally that the process of reducing Fe_2O_3 to Fe_3O_4, like other reduction phenomena, is autocatalytic in character. Because the reactive diffusion of the Fe was retarded at 570-400°, Fe_3O_4 was reduced to Fe via the intermediate metastable phase FeO. The latter, depending on the conditions, can be separated out in the form of an independent phase, or it can exist in the form of an intermediate metastable layer. Lowering the temperature (below 570°) lessened the probability that the metastable phase FeO would form. At temperatures below 400° this probability became very small. P.V.Gel'd, in the course of a discussion, formulated the hypothesis that the experimentally

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Some Features of the Mechanism and Kinetics (cont.)

obtained gradation of the Fe_2O_3 reduction-rate curves is accounted for by the fact that at no time throughout the ore sample does reduction occur uniformly, i.e., in the same degree. The Author has shown, however, that this gradation is observed only in cases where the sample under study has been prepared from highly dispersed ore powder. This indicates how near the process is to being entirely synchronous.

I.K.

1. Iron--Reduction--Processes

Card 2/2

TURKENICH, D.I., inzh.; ROSTOVTSEV, S.T., prof., doktor tekhn.nauk

Dynamics of changes in nonmetallic oxide inclusions during the bessemer converter blow. Izv.vys. ucheb.zav.; chern.met no.9:37-44 S '58. (MIRA 11:11)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Bessemer process) (Nonmetallic materials)

18(3)
AUTHORS: Baptizmanskiy, V. I., Dubrovskiy, Yu. A., SOV/163-59-1-6/50
Lapitskiy, V. I., Poyarkov, A. M., Rostovtsev, S. T.,
Sesyuk, G. S., Ogryzkin, Ye. M.

TITLE: Conversion of High-phosphorus Pig Iron in Oxygen-blast Converters (Peredel vysokofosforistogo chuguna v konvertere s kislorodnym dut'yem). Communication I. Conversion of High-phosphorus Pig Iron in a Converter With Combined Lateral Blast (Soobshcheniye I. Peredel vysokofosforistogo chuguna v konvertere s bokovym kombinirovannym dut'yem)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 1, pp 25-27 (USSR)

ABSTRACT: The results obtained by the investigations carried out in the steel melting laboratory of the DMI from 1956-1957 are presented. The collaborators of the IChM AS UkrSSR assisted in the recording of the case histories of the heats, and in the selection and analysis of metal and slag samples. In the IChM AS UkrSSR in collaboration with the DMI the converting of Kerch pig iron in the laboratory furnace was investigated. For this purpose the 0.9-1.0 t laboratory converter was adapted to combined lateral blasting. The converter had a capacity of

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Conversion of High-phosphorus Pig Iron in Oxygen-blast Converters. Communication I. Conversion of High-phosphorus Pig Iron in a Converter With Combined Lateral Blast

SOV/163-59-1-6/50

0.85 m^3, the depth of the metal bath was 355 mm. Pig iron of the following composition was converted: 3.4 % C-3.8 % C, 1.3-1.8 % P, 1.0-1.3 % Mn, 1.10-0.5 % Si, 0.08-0.20 % S, 0.10-0.25 % V. The pig iron had been melted in a cupola furnace. Previous to converting it had a temperature of 1,140-1,200°. Limestone was added to a percentage of 13-15 of the charge weight. A special device permitted to add the fluxing agents at any moment without interruption of the converting process. In the experiments with combined blasting the air was supplied to the converter through 4 tuyères with a diameter of 40 mm at a pressure of 0.15-0.25 atmospheres excess pressure by a centrifugal blower with a capacity of 50-60 m^3/min. The oxygen was supplied through two special copper tubes mounted within the tuyères under 6-10 atmospheres excess pressure. The flow rate of oxygen varied between 1.7-4.2 m^3/min the oxygen consumption per ton being 15-25 m^3. In this investigation special interest was given to problems of slag formation and of early dephosphorization. Several

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methods of blast arrangement were studied. The best results were obtained with the second test series where the inclination of the tuyères was reduced to 0-5° (from the horizontal) and the flow rate was reduced by closing two tuyères. These measures lead to quite respectable results. A comparison with information from publications (Refs 8-10) showed that the formation of slag with a high solution value and the oxidation of the phosphorus proceeds much faster in a converter with a combined air-oxygen blast than in a converter with only bottom or lateral air blast. In converters with combined blast it is possible to produce a slag with a P_2O_5 content meeting the specifications and an ingot steel with a low nitrogen and phosphorus content ($\ll 0.04$ %) without any considerable overconverting. The experiments showed that the following measures must be taken in order to accelerate slag formation and dephosphorization: 1) During the initial stage of the process (25-30 % of the total time) the blast must be directed onto the metal surface or into the upper layer of the bath.

Conversion of High-phosphorus Pig Iron in Oxygen-blast Converters. Communication I. Conversion of High-phosphorus Pig Iron in a Converter With Combined Lateral Blast

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2) A well calcined limestone must be used and it must be given in portions at certain intervals. There are 10 references, 5 of which are Soviet.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Institute of Metallurgy)

SUBMITTED: June 5, 1958

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18(3)

AUTHORS: Baptizmanskiy, V. I., Dubrovskiy, Yu. A., SOV/163-59-1-7/50
Lapitskiy, V. I., Poyarkov, A. M., Rostovtsev, S. T.,
Sesyuk, G. S., Ogryzkin, Ye. M.

TITLE: Conversion of High-phosphorus Pig Iron in an Oxygen-blast Converter (Peredel vysokofosforistogo chuguna v konvertere s kislorodnym dut'yem). Communication II. Conversion of High-phosphorus Pig Iron by Top Blasting (Soobshcheniye II. Peredel vysokofosforistogo chuguna v konvertere s verkhnim kislorodnym dut'yem)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 1, pp 28-33 (USSR)

ABSTRACT: This investigation was carried out with water cooled blast tuyères with a diameter of 8-10 mm, blasting oxygen with a purity of 94-98 % under 5-8 atmospheres excess pressure into the converter. The rate of oxygen supply varied between 3.3-6.1 m^3/min, the average oxygen consumption for the last heats was 70 m^3/ton. Limestone and for some heats pig iron with a bauxite content of 1.5-2.0 % were used as a fluxing agent. For the last heats limestone-ore briquettes with an

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ore content of about 50 % were used. The fluxing agents were added in portions, 3 to 4 times, in intervals of 1.5-4.0 minutes. All in all 12 experimental heats were prepared. It appeared from the results that the course of slag formation and of dephosphorization in converting high-phosphorus pig iron in a converter with a top oxygen blast are essentially dependent upon the following factors: 1) Upon the iron oxide constituent in the primary slag. 2) Upon the oxygen supply and the rate of oxygen consumption by the heat. Both factors are determined by the circulation in the heat. 3) Upon the state and the composition of the slag constituents. 4) Upon the thickness of the solid phase layer in the converter during the initial stage of converting. 5) Upon the temperature conditions during blasting. The experiments showed that 1) If high-phosphorus pig iron is converted in oxygen top-blast converters the formation of a basic slag with a high solution value, which can be brought up to the specified P_2O_5 content can be guaranteed at the beginning of blasting (by adding up

to 15 % of limestone). By the same way an early dephosphorization may be ensured and thus a metal with a phosphorus content of less than 0.1 % at a high carbonconcentration (1-1.5 %) can be produced. This may be achived without using fluor-spar or rabbling the slag. 2) In converters of such a type carbon steel can be produced from basic Bessemer pig iron with a low phosphorus content (< 0.05 %) and a low nitrogen content. This may be achieved by stopping the process at the specified carbon content. 3) The formation of a slag with a high solution value and the oxidation of phosphorus in a converter with combined lateral blasting (with a separate air and oxygen supply) proceed much faster than in converters with a bottom and lateral air blast. There are 5 figures and 2 Soviet references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Institute of Metallurgy)

SUBMITTED: June 5, 1958

ROSTOVTSEV, S.T.; SIMONOV, V.K.

Nekotorye osobennosti kinetiki i mexanizma vosstanovleniya okislov zheleza uglerodom.

report submitted for the 5th Physical Chemical Conference on Steel Production.

MOSCOW - 20 JUN 1959

BAPTIZMANSKIY, V.I.; DUBROVSKIY, Yu.A.; LAPITSKIY, V.I.; POYARKOV, A.M.; ROSTOVTSEV, S.T.; SESYUK, G.S.; OGRYZKIN, Ye.M

Refining highly phosphorous cast iron in converters with oxygen blow. Report No.1. Nauch.dokl.vys.shkoly; met. no.1:25-27 '59. (MIRA 12:5)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Cast iron--Metallurgy)
(Converters)

BAPTIZMANSKIY, V.I.; DUBROVSKIY, Yu.A.; LAPITSKIY, V.I.; POYARKOV, A.M.; ROSTOVTSEV, S.T.; SESYUK, G.S.; OGRYZKIN, Ye.M.

Refining highly phosphorous cast iron in converters with oxygen blow. Report No. 2. Nauch.dokl.vys.shkoly; met. no.1:28-33 '59. (MIRA 12:5)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Cast iron--Metallurgy)
(Converters)

18 (5), 18 (3)

AUTHORS: Rostovtsev, S. T., Rudenko, L. N., Simonov, V. K.

SOV/163-59-2-1/48

TITLE: On the Mechanism of the Reduction Process of Ferric Oxide (K voprosu o mekhanizme reaktsiy vosstanovleniya okislov zheleza)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 2, pp 5-8 (USSR)

ABSTRACT: The reduction of ferric oxide with gaseous CO and H_2 is a complicated heterogeneous process in which various phase transformations occur on the surface of the ferric oxide. Iron in atomic state is produced on the surface during the reduction process. The atomic iron produced on the surface of the crystalline lattice of the oxide phase plays an important rôle in the heterogeneous catalysis. The atomic ions of the iron metal are the active centres on which the gas molecules are adsorbed. The activating adsorption of the gases which have a reducing effect on the surface of the oxides is the beginning of a chemical interaction in the reduction process. Iron- and oxygen ions form a complex on the surface of the

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On the Mechanism of the Reduction Process of Ferric Oxide

SOV/163-59-2-1/48

ferric oxide. The absorption complex $\{mCO^{2+} - mO^{2-}\}$ passes over into CO_2 molecules. The reduction of Fe_2O_3 proceeds gradually, i. e. $Fe_2O_3 \longrightarrow \gamma$-phase and γ-phase $\longrightarrow$ $\longrightarrow Fe_3O_4$. The first stage proceeds with, the second stage without phase transformation. There are 5 Soviet references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: May 19, 1958

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18 (3)
AUTHORS: Rostovtsev, S. T., Yem, A. P. SOV/163-59-2-2/48

TITLE: Some Kinetic Rules in the Reduction of Ferric Oxide With Hydrogen in Layers (Nekotoryye kineticheskiye zakonomernosti vosstanovleniya okislov zheleza vodorodom v sloye)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 2, pp 9-14 (USSR)

ABSTRACT: The reduction of the iron ores in layers has a complicated kinetics. The rate of the reduction process depends on the crystalline transformation of the ferric oxide in the layers. The degree of reduction is detected by a gravimetric determination of the ore or by the measurement of the vapor developed. The dependence of the reduction process on temperature was investigated and is shown in figure 1. The curves in figure 1 show the course of a reduction in the case of a temperature rise which is expressed by the dependence $U = H:w_o/k$. The kinetics of a reduction process of the iron in layers was investigated at 400^o and 800^o and given in figure 2 (a - b). The influence of the rate of flow of the reduction gas on the reduction of ferric oxide was investigated

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in the course of 30 minutes at 800° and is given in figure 3. It was found that a loss of unused reduction gases occurs with the rise of the rate of flow. Thus an experimental detection of the optimum rate of flow of the reduction gas is apparently necessary. There are 3 figures and 2 Soviet references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: May 19, 1958

TURKENICH, D.I., inzh.; ROSTOVTSEV, S.T., prof.; BAPTIZMANSKIY, V.I., dotsent; PROSVIRIN, K.S., inzh.

Effect of reduction and modification on the purity and resilience of converter rail steel. Izv. vys. ucheb. zav.; chern. met. 2 no.3: 21-25 Mr '59. (MIRA 12:7)

1.Dnepropetrovskiy metallurgicheskiy institut. Rekomendovano kafedroy teorii metallurgicheskikh protsessov Dnepropetrovskogo metallurgicheskogo instituta..
(Steel--Metallography)
(Railroads--Rails--Testing)
(Bessemer process)

RUDENKO, L.N., inzh.; ROSTOVTSEV, S.T., prof., doktor tekhn. nauk

Iron oxide reduction by carbon monoxide, hydrogen and their mixtures. Izv. vys. ucheb. zav.; chern. met. 2 no.4:3-12 Ap '59. (MIRA 12:8)

1.Dnepropetrovskiy metallurgicheskiy institut. Rekomendovano kafedroy teorii metallurgicheskikh protsessov Dnepropetrovskogo metallurgicheskogo instituta.
(Oxidation-reduction reaction) (Iron--Metallurgy)

SIMONOV, V.K.; ROSTOVTSEV, S.T.

Some problems of the kinetics and the mechanism of iron oxide reduction by carbon. Izv.vys.ucheb.zav.; chern.met. no.4: 5-18 '60. (MIRA 13:4)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Iron--Metallurgy)

ROSTOVTSEV, S. T.

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PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th, Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii (Physicochemical Bases of Steel Making; Transactions of the Fifth Conference on the Physicochemical Bases of Steelmaking) Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted. 3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg. Tech. Ed.: V. V. Mikhaylova.

Card 1/16

Physicochemical Bases of (Cont.)

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

Card 2/16

S/137/62/000/003/006/191
A006/A101

AUTHORS: Rostovtsev, S. T., Simonov, V. K.

TITLE: Some peculiarities of kinetics and mechanism of iron oxide reduction with carbon

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 14, abstract 3A76 (V sb. "Fiz.-khim. osnovy proiz-va stali", Moscow, AN SSSR, 1961, 143-156)

TEXT: The direct reduction of Fe oxides is a complex process where the gaseous phase plays an important part. However, the participation of the gaseous phase does not exhaust all the peculiarities of the process and cannot be considered by the mechanical combination of two links, namely indirect reduction and gasification of C. These two processes are closely interacting, both in the physico-chemical and the temperature-thermal relation. The three stages of direct reduction of Fe_2O_3 proceed under strongly different conditions, producing specific peculiarities of their kinetics. In the initial stage the main part is acted by the gaseous phase ($CO-CO_2$), and kinetics of the third stage is strongly affected by the appearance of Fe metal. The important part of Fe metal was

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TURKENICH, D.I.; ROSTOVTSEV, S.T.

Nometallic inclusions in bessemer rail steel. Izv. vys. ucheb. zav.; chern. met. 4 no.7:62-66 '61. (MIRA 14:8)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Steel--Metallography)

OSTRIK, P.N.; ROSTOVTSEV, S.T.

Laboratory equipment for the automatic recording of the reduction kinetics of metal oxides. Izv. vys. ucheb. zav.; chern. met. 4 no.7:195-199 '61. (MIRA 14:8)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Oxidation-reduction reaction)
(Recording instruments)

ACC NR: AP7007075

SOURCE CODE: UR/0021/66/000/008/1022/1024

AUTHOR: Gladkov, M. A.; Nekrasov, Z. I. (Academician UkrSSR); Rostovtsev, S. T.; Shmel'ov, Yu. S.--Shmelev, Yu. S.

ORG: Institute of Ferrous Metallurgy, State Committee on Ferrous and Nonferrous Metallurgy, USSR State Planning Committee (Instytut chornoyi metalurgiyi Derzhkomitety po chorniy i kol'oroviy metalurgiyi pri Derzhplani SRSR)

TITLE: Measurements of viscosity of a pseudo-fluidized bed

SOURCE: AN UkrRSR. Dopovidi, no. 8, 1966, 1022-1024

TOPIC TAGS: viscosity, fluid viscosity measurement, magnetic field

SUB CODE: 20,13

ABSTRACT: The viscosity along the top of a fluidized bed was determined by measuring the velocity with which a plastic sphere containing lead filings fell into the bed. The sphere was suspended on a capron thread from a pulley and, in falling, moved a shutter to which the thread was fastened on the other side of the pulley. The movement of the shutter changed the amount of light illuminating a photoresistance that formed a part of an electric measurement circuit. Calibration in poises was carried out by conducting measurements on aqueous glycerine and molasses solutions of known viscosity. Viscosity measurements were carried out on a fluidized bed 400 mm high consisting of an iron ore concentrate with a mean particle diameter of 0.46 mm. The particles were held in suspension by N_2 blown in at a velocity of 0.18m/sec (Re = 4.36). The viscosity showed a maximum at a depth of 180 mm in the layer, where the

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ACC NR: AP7007075

least permeable zone of suspended material was apparently located. The experimental set-up was equipped with electromagnets that were used to study the effects of a magnetic field on the structure of the fluidized bed. Orig. art. has: 4 figures. [JPRS: 39,658]

Card 2/2

SIMONOV, V.K.; RUDENKO, L.N.; ROSTOVTSEV, S.T.; LISOVSKIY, A.F.

Reduction of fluxed sinter by soot carbon in a flow of nitrogen, carbon monoxide and their mixtures. Izv.vys.ucheb.zav.; chern.met. 8 no.6:16-21 '65. (MIRA 18:8)

1. Dnepropetrovskiy metallurgicheskiy institut.

KOSTELOV, O.A., KOSTOVTSEV, S.I.

Low temperature reduction of iron oxide by gases (hydrogen and carbonyl). Stal' 25 no.3:209-213 Mr '65.

(MIRA 18:4)

MILYUTIN, V.N.; ROSTOVTSEV, S.T.

Kinetics of the reduction of fluxed iron ore pellets by hydrogen. Izv. vys. ucheb. zav.; chern. met. 8 no.7:5-10 '65. (MIRA 18:7)

1. Dnepropetrovskiy metallurgicheskiy institut.

ASHIN, A.K.; ROSTOVTSEV, S.T.

Kinetics and the mechanism of the reduction of manganese oxides by carbon. Report no.2. Izv. vys. ucheb. zav.; chern. met. 7 no.7:10-18 '64 (MIRA 17:8)

1. Dnepropetrovskiy metallurgicheskiy institut.

ASHIN, A. K.; ROSTOVTSEV, S. T.

Kinetics and the mechanism of the reduction of manganese oxides by carbon. Report No. 1. Izv. vys. ucheb. zav.; chern met 7 no. 4: 11-19 '64. (MIRA 17:5)

1. Dnepropetrovskiy metallurgicheskiy institut.

ASHIN, A.K.; ROSTOVTSEV, S.T.

Kinetics of manganese oxide reduction by hydrogen. Izv. vys. ucheb. zav.; chern. met. 7 no.1:5-12 '64. (MIRA 17:2)

1. Dnepropetrovskiy metallurgicheskiy institut.

LEVCHENKO, V.I.; ROSTOVTSEV, S.T.

Silicon reduction in the systems SiO_2 - Fe_2O_3 and SiO_2 - CaO.
Izv. vys. ucheb. zav.; chern. met. 6 no.8:5-12 '63.
(MIRA 16:11)

1. Dnepropetrovskiy metallurgicheskiy institut.

LEVCHENKO, V.I.; ROSTOVTSEV, S.T.

Kinetics of silicon reduction from mixtures of SiO_2 - CaO - Fe_2O_3 and fluxed sinter. Izv. vys. ucheb. zav.; chern. met. 6 no.7:13-20 '63. (MIRA 16:9)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Oxidation-reduction reaction)

LEVCHENKO, V.I.; ROSTOVTSEV, S.T.

Silicon reduction from blast furnace slag. Dop. AN URSR no.8:1046-1051 '63. (MIRA 16:10)

1. Dnepropetrovskiy metallurgicheskiy institut. Predstavleno akademikom AN UkrSSR K.F. Starodubovym.
(Reduction, Chemical) (Silicon)

RUDENKO, L.N.; ROSTOVTSEV, S.T.

Mechanism of the low-temperature reduction of iron oxide. Izv. vys.ucheb.zav.; chern.met. 5 no.11:5-11 '62. (MIRA 15:12)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Iron oxides) (Oxidation-reduction reaction)

OSTRIK, P.N.; ROSTOVTSEV, S.T.

Effect of the gaseous phase composition on the kinetics of fluxed sinter reduction. Izv. vys. ucheb. zav.; chern. met. 5:17-25 '62. (MIRA 15:10)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Sintering) (Gases--Analysis)

LESHCHINSKAYA, Ye.I.; ROSTOVTSEV, S.T.

Mineralogical composition of fluxed sinter and characteristics of its reduction. Report No.2. Izv. vys. ucheb. zav.; chern. met. 5 no.5:5-15 '62. (MIRA 15:6)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Sintering)
(Mineralogical chemistry)

LESHCHINSKAYA, Ye.I.; ROSTOVTSEV, S.T.

Mineralogical composition of fluxed sinter and characteristics of its reduction. Report no.1. Izv. vys. ucheb. zav.; chern. met. 5 no.3:12-23 '62. (MIRA 15:5)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Sintering) (Iron--Metallurgy)

OSTRIK, P.N.; ROSTOVTSEV, S.T.

Effect of basicity on the kinetics of fluxed sinter reduction by hydrogen. Izv. vys. ucheb. zav.; chern met. 5 no.1:5-13 '62. (MIRA 15:2)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Sintering)

OSTRIK, P.N.; ROSTOVTSEV, S.T.

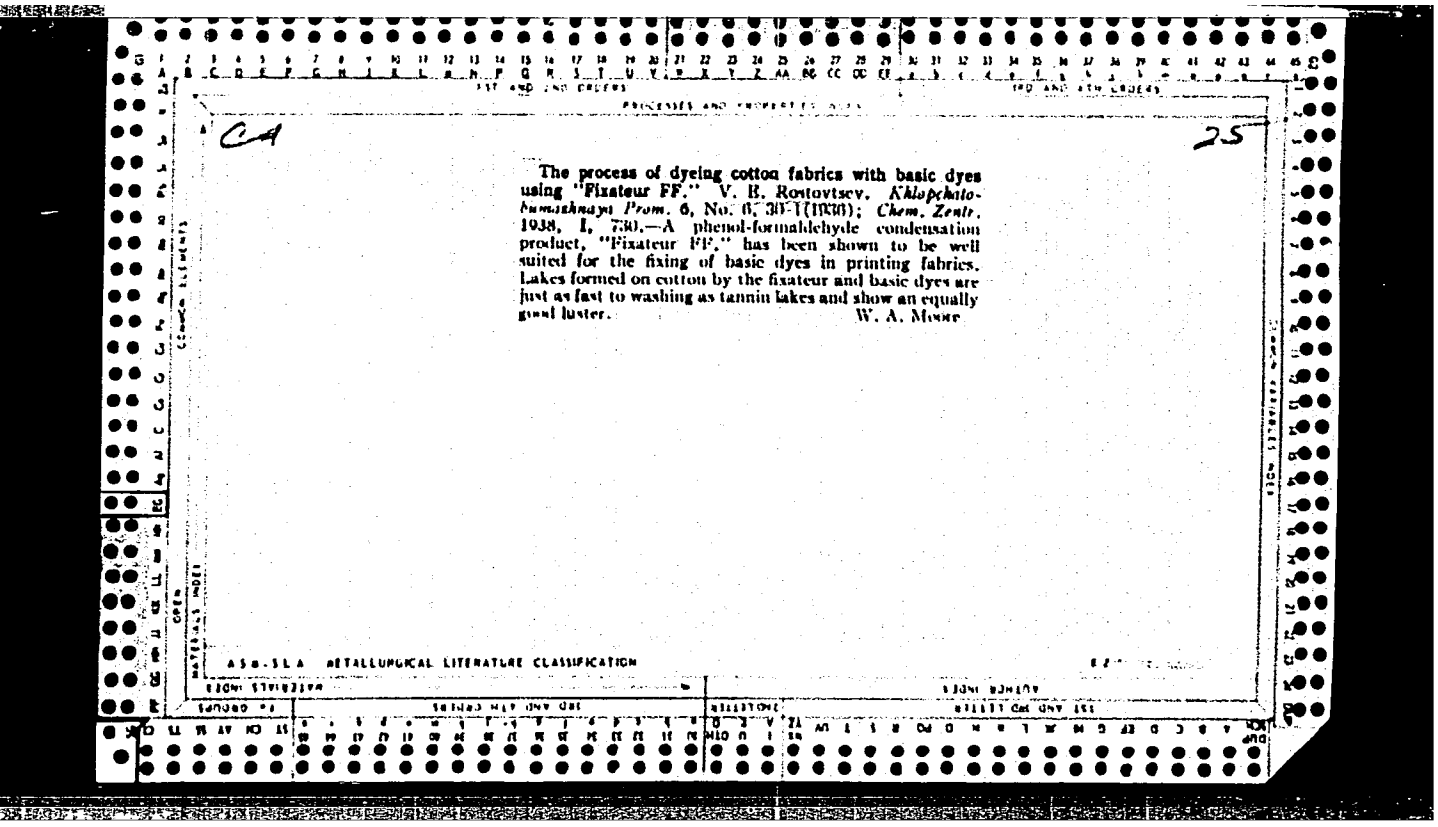
Kinetics of the reduction of fluxed sinter by solid carbon. Izv. vys. ucheb. zav.; chern. met. 6 no.5:19-25 '63. (MIRA 16:7)

1. Dneprodzerzhinskiy metallurgicheskiy institut.
(Sintering) (Iron--Metallurgy)

ROSTOVTSEV, V.

Communists as organizers and leaders of the masses. Prom.koop. 13 no.8:8 Ag '59. (MIRA 12:12)

1. Sekretar' partbyuro leningradskoy arteli "Progress". (Communist Party of the Soviet Union--Party work)



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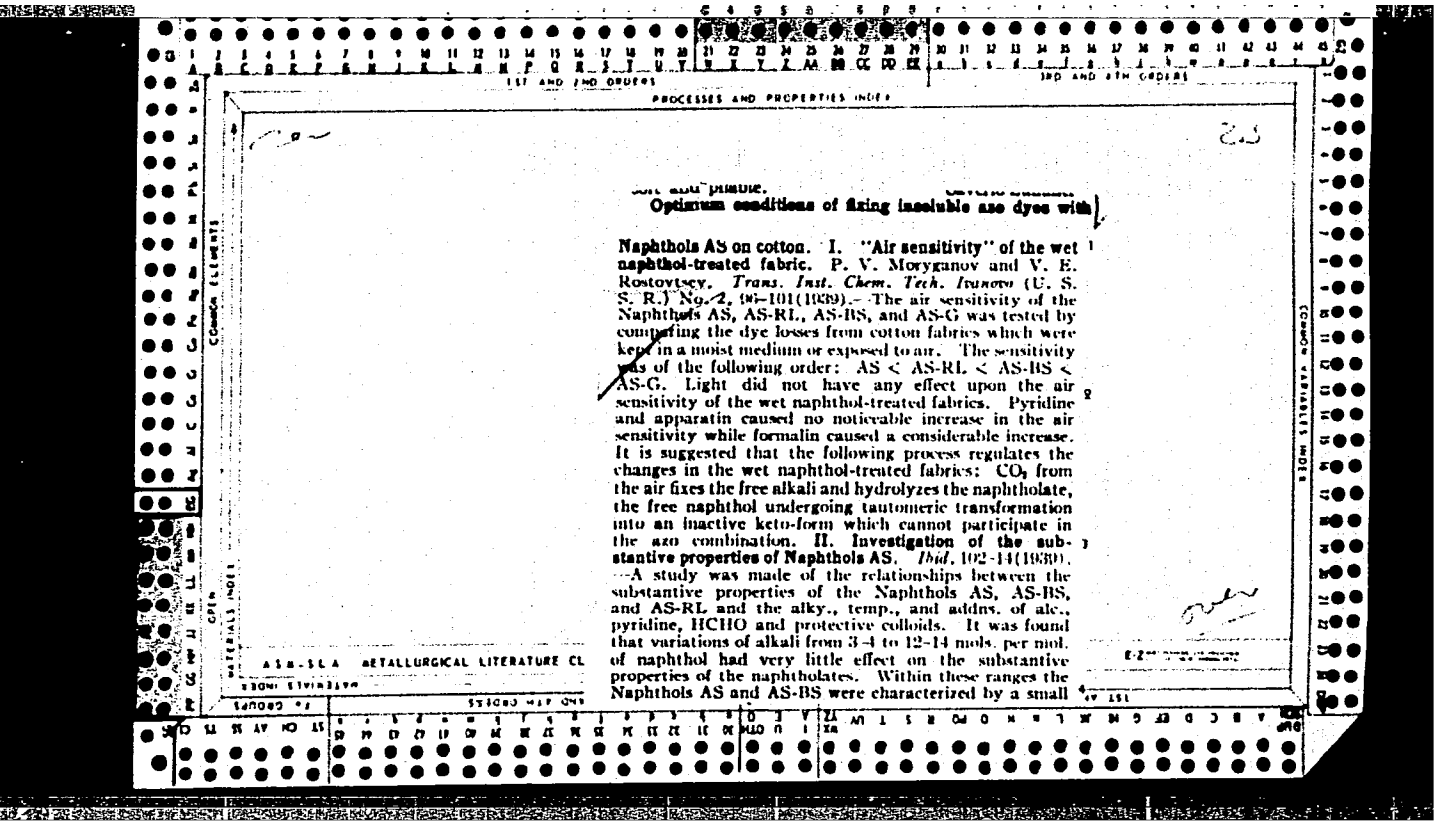
The process of dyeing cotton fabrics with basic dyes using "Fixateur FF." V. B. Rostovtsev. *Khlopchatobumazhnaya Prom.* 6, No. 6, 30-1(1938); *Chem. Zentr.*, 1938, I, 730.—A phenol-formaldehyde condensation product, "Fixateur FF," has been shown to be well suited for the fixing of basic dyes in printing fabrics. Lakes formed on cotton by the fixateur and basic dyes are just as fast to washing as tannin lakes and show an equally good luster.

W. A. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

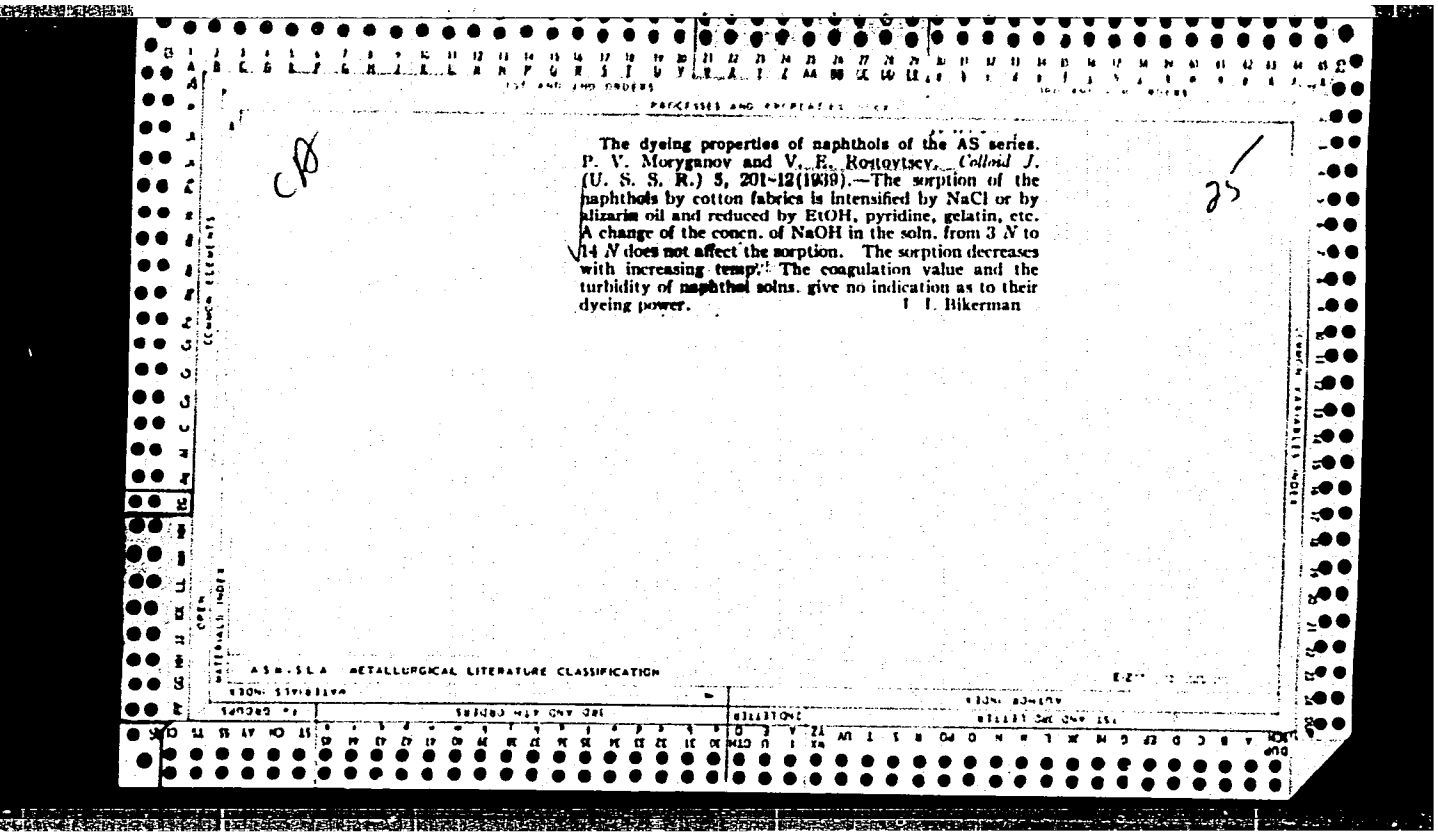


PROCESSES AND PROPERTIES INDEX

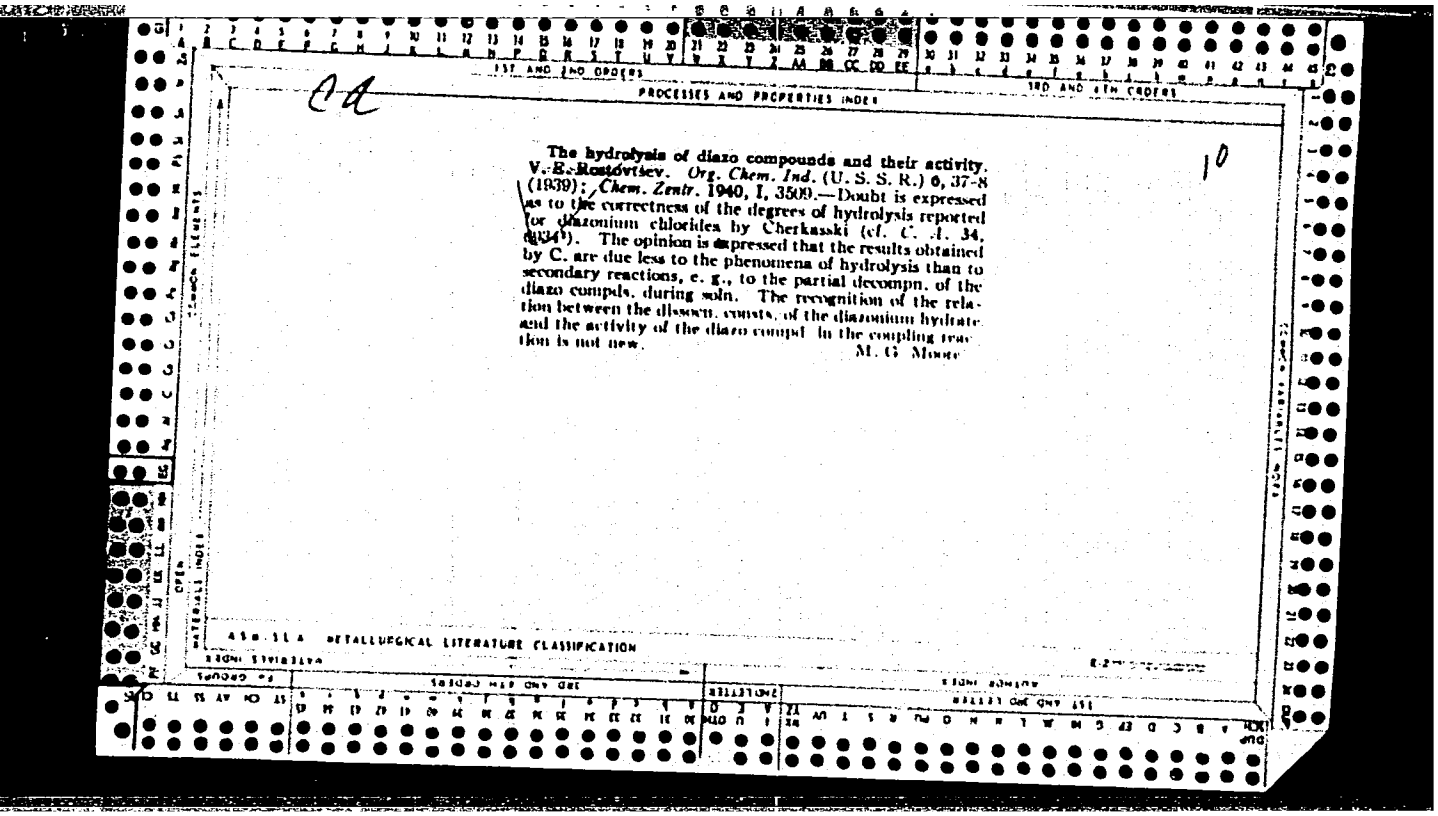
Optimum conditions of fixing insoluble azo dyes with

Naphthols AS on cotton. I. "Air sensitivity" of the wet naphthol-treated fabric. P. V. Moryganov and V. E. Rostovtsev. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) No. 2, 98–101(1939).—The air sensitivity of the Naphthols AS, AS-RL, AS-BS, and AS-G was tested by comparing the dye losses from cotton fabrics which were kept in a moist medium or exposed to air. The sensitivity was of the following order: AS < AS-RL < AS-BS < AS-G. Light did not have any effect upon the air sensitivity of the wet naphthol-treated fabrics. Pyridine and apparatin caused no noticeable increase in the air sensitivity while formalin caused a considerable increase. It is suggested that the following process regulates the changes in the wet naphthol-treated fabrics: CO_2 from the air fixes the free alkali and hydrolyzes the naphtholate, the free naphthol undergoing tautomeric transformation into an inactive keto-form which cannot participate in the azo combination. **II. Investigation of the substantive properties of Naphthols AS.** *Ibid.* 102–14(1939).—A study was made of the relationships between the substantive properties of the Naphthols AS, AS-BS, and AS-RL and the alky., temp., and addns. of alc., pyridine, HCHO and protective colloids. It was found that variations of alkali from 3–4 to 12–14 mols. per mol. of naphthol had very little effect on the substantive properties of the naphtholates. Within these ranges the Naphthols AS and AS-BS were characterized by a small

ASM-SLA METALLURGICAL LITERATURE CL



The dyeing properties of naphthols of the AS series. P. V. Moryganov and V. E. Rostovtsev. *Colloid J.* (U. S. S. R.) 5, 201-12(1939).—The sorption of the naphthols by cotton fabrics is intensified by NaCl or by alizarin oil and reduced by EtOH, pyridine, gelatin, etc. A change of the concn. of NaOH in the soln. from 3 *N* to 14 *N* does not affect the sorption. The sorption decreases with increasing temp. The coagulation value and the turbidity of naphthol solns. give no indication as to their dyeing power. I. L. Bikerman



CA

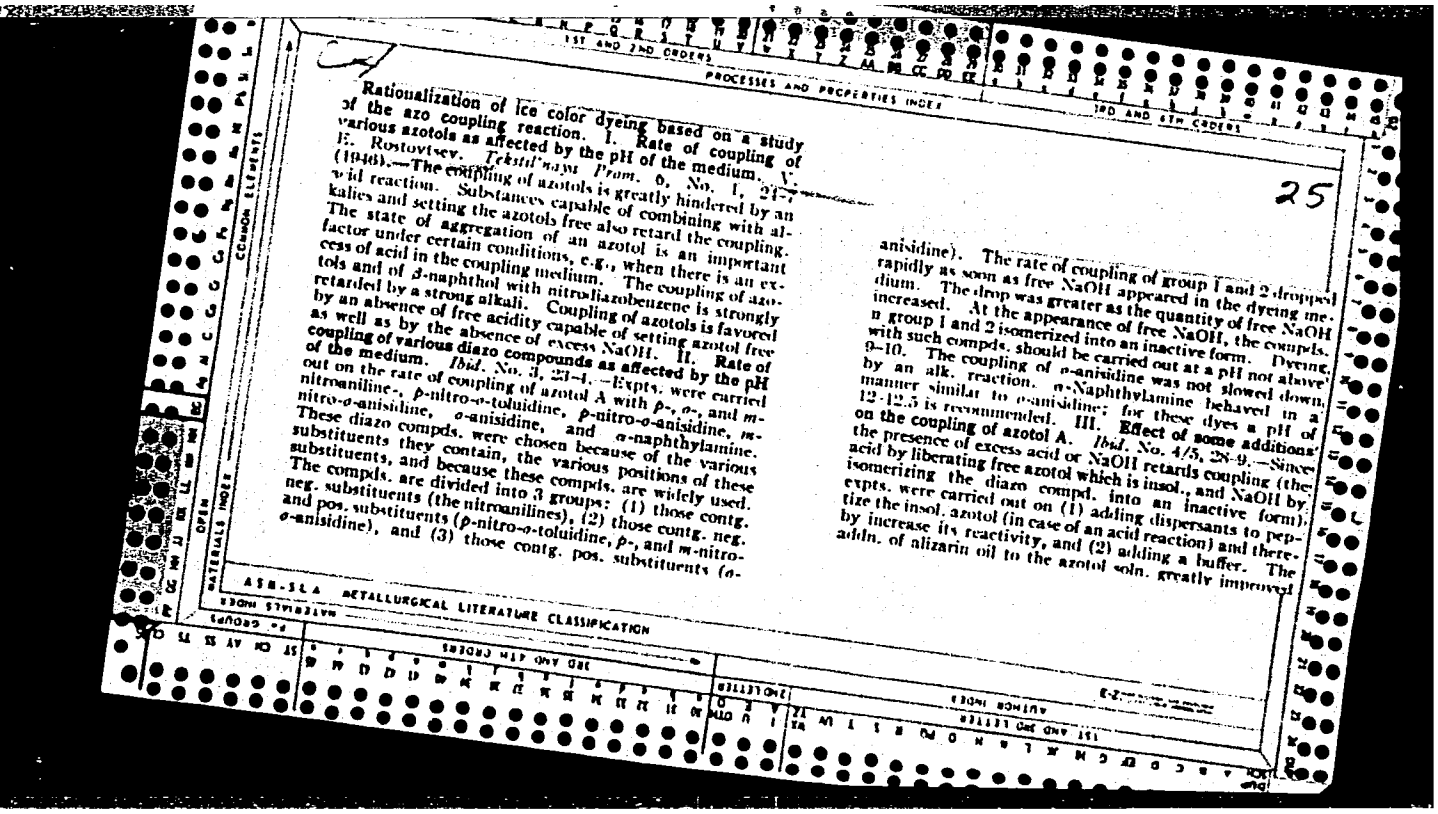
PROCESSES AND PROPERTIES INDEX

10

The hydrolysis of diazo compounds and their activity. V. E. Rostovtsev. *Org. Chem. Ind.* (U. S. S. R.) 6, 37-8 (1939); *Chem. Zentr.* 1940, I, 3509.—Doubt is expressed as to the correctness of the degrees of hydrolysis reported for diazonium chlorides by Cherkasski (*cf. C. A.* 34, 4934). The opinion is expressed that the results obtained by C. are due less to the phenomena of hydrolysis than to secondary reactions, e. g., to the partial decompn. of the diazo compds. during soln. The recognition of the relation between the dissocn. consts. of the diazonium hydrate and the activity of the diazo compd. in the coupling reaction is not new.

M. G. Moore

A 58.11 A METALLURGICAL LITERATURE CLASSIFICATION

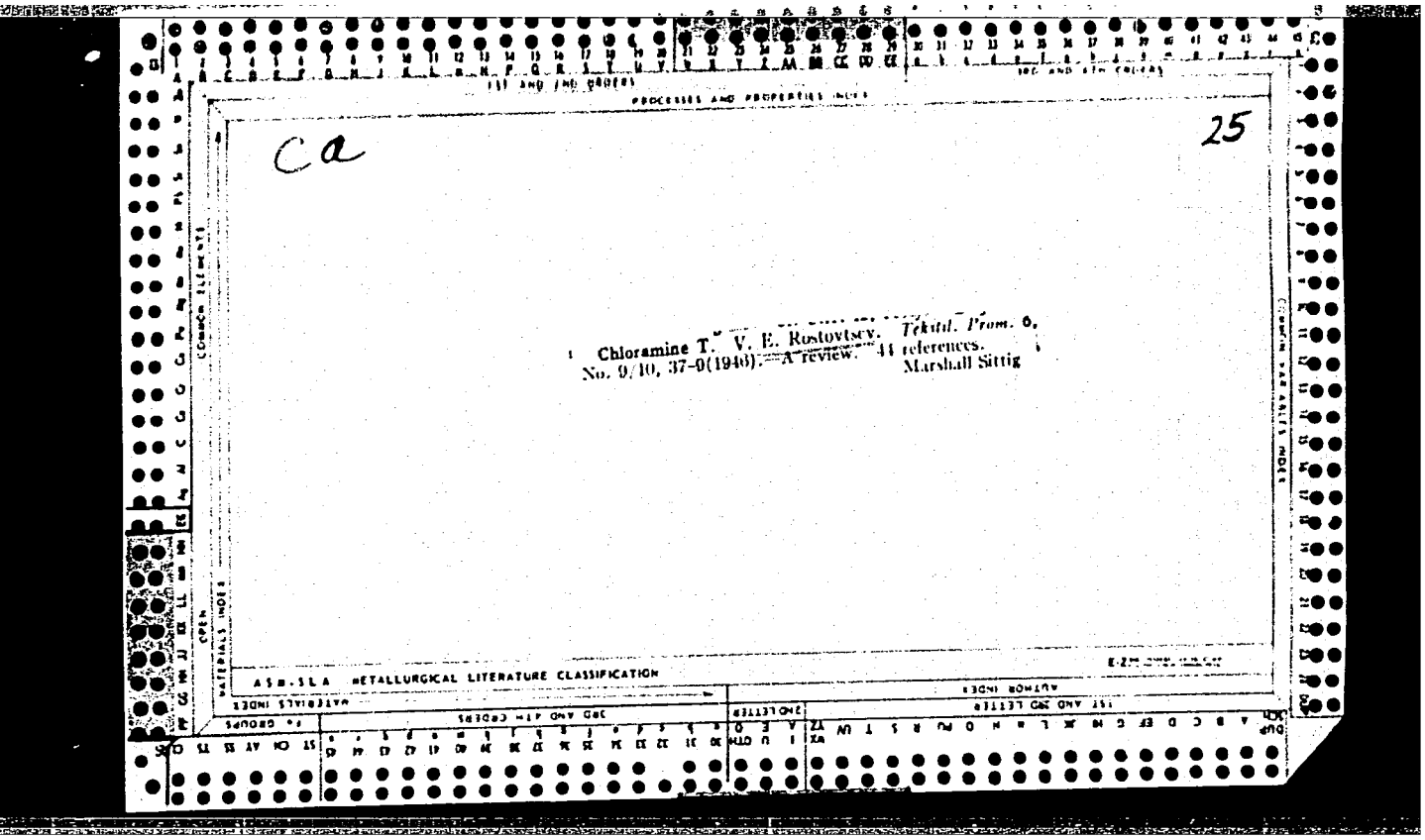


PROCESSES AND PROPERTIES INDEX

25

Rationalization of ice color dyeing based on a study of the azo coupling reaction. I. Rate of coupling of various azotols as affected by the pH of the medium. V. E. Rostovtsev. *Tekstil'naya Prom.* 6, No. 1, 24–7 (1946).—The coupling of azotols is greatly hindered by an acid reaction. Substances capable of combining with alkalies and setting the azotols free also retard the coupling. The state of aggregation of an azotol is an important factor under certain conditions, e.g., when there is an excess of acid in the coupling medium. The coupling of azotols and of β-naphthol with nitrodiazobenzene is strongly retarded by a strong alkali. Coupling of azotols is favored by an absence of free acidity capable of setting azotol free as well as by the absence of excess NaOH. **II. Rate of coupling of various diazo compounds as affected by the pH of the medium.** *Ibid.* No. 3, 23–4.—Expts. were carried out on the rate of coupling of azotol A with *p*-, *o*-, and *m*-nitroaniline-, *p*-nitro-*o*-toluidine, *p*-nitro-*o*-anisidine, *m*-nitro-*o*-anisidine, *o*-anisidine, and α-naphthylamine. These diazo compds. were chosen because of the various substituents they contain, the various positions of these substituents, and because these compds. are widely used. The compds. are divided into 3 groups: (1) those contg. neg. substituents (the nitroanilines), (2) those contg. neg. and pos. substituents (*p*-nitro-*o*-toluidine, *p*-, and *m*-nitro-*o*-anisidine), and (3) those contg. pos. substituents (*o*-anisidine). The rate of coupling of group I and 2 dropped rapidly as soon as free NaOH appeared in the dyeing medium. The drop was greater as the quantity of free NaOH increased. At the appearance of free NaOH, the compds. in group 1 and 2 isomerized into an inactive form. Dyeing with such compds. should be carried out at a pH not above 9–10. The coupling of *o*-anisidine was not slowed down by an alk. reaction. α-Naphthylamine behaved in a manner similar to *o*-anisidine; for these dyes a pH of 12–12.5 is recommended. **III. Effect of some additions on the coupling of azotol A.** *Ibid.* No. 4/5, 28–9.—Since the presence of excess acid or NaOH retards coupling (the acid by liberating free azotol which is insol., and NaOH by isomerizing the diazo compd. into an inactive form), expts. were carried out on (1) adding dispersants to peptize the insol. azotol (in case of an acid reaction) and thereby increase its reactivity, and (2) adding a buffer. The addn. of alizarin oil to the azotol soln. greatly improved

tue coupling over a wide pH range. Addn. of pyridine (solubilizer, for azotol), 10 g. per l., increased the yield of dye by 5–6%. Gelatin (as protective colloid) increased the yield of dye by 2–3%. Also tried were glycerol and glucose. 10 g. per l., of the former increased the yield of dye by 2–2.5%, while with the same quantity of glucose the increase was 0–0.5%. A combination of glucose 20 and alizarin 40 g. per l. reduced the quantity of uncombined diazo compd. by almost 2 times. Na_2CO_3 was tried as buffer with very good results. It is therefore advisable that the diazo soln. should contain a quantity of acid sufficient to neutralize all the NaOH derived from the soln. of azotol A. Also there should be enough Na_2CO_3 in the azotol soln. to take care of any excess of acid which may be present. IV. **Industrial experiments.** *Ibid.* No. 6, 31–3.—The exptl. results were tested under industrial conditions in dyeing and printing. The industrial results were fully satisfactory. The compns. of the baths are given. The new make-up of the dye baths almost halved the consumption of amines and of $NaNO_2$, the acid used in the diazo bath was HCl, thus obviating the use of Na acetate, the quantity of required ice was reduced, and the dyeing itself was greatly improved. A number of formulas for calcg. the dyeing process is given.



CA

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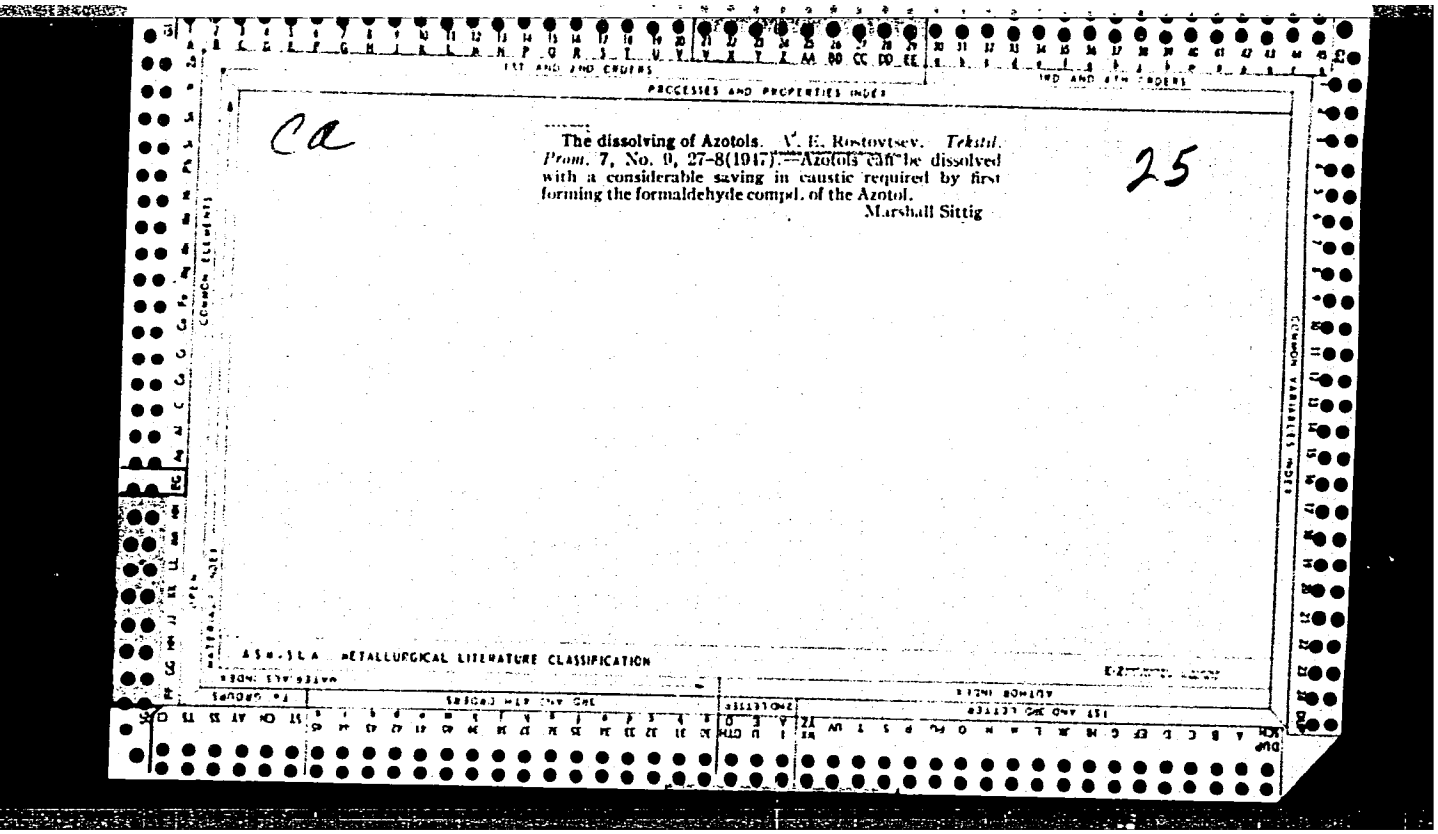
Desizing textiles. V. E. Rostovtsev. U.S.S.R. 69,-942, Dec. 31, 1947. The starch in the size is degraded with mono- or dichloroamides of aromatic sulfonic acids, of the type chloramine T, in an alk. medium. The process is carried out in the presence of a wetting agent and an activator at 95–100° for 15–20 sec. As an activator is used a Cu salt.
M. Hosch



PROCESSES AND PROPERTIES INDEX

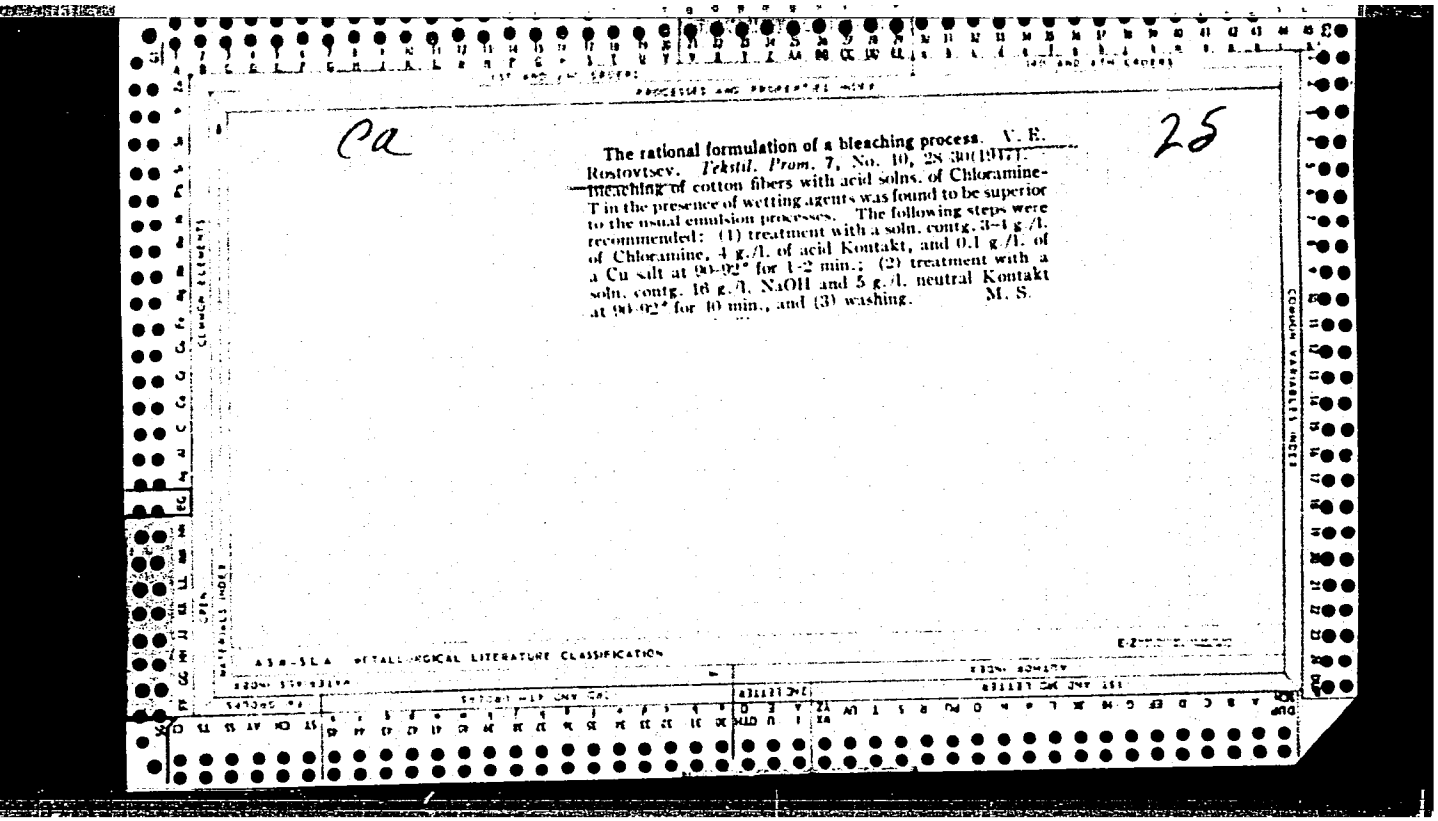
Ca

25

The dissolving of Azotols. V. E. Rostovtsev. *Tekstil. Prom.* 7, No. 9, 27–8(1947).—Azotols can be dissolved with a considerable saving in caustic required by first forming the formaldehyde compd. of the Azotol.

Marshall Sittig

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



Ca

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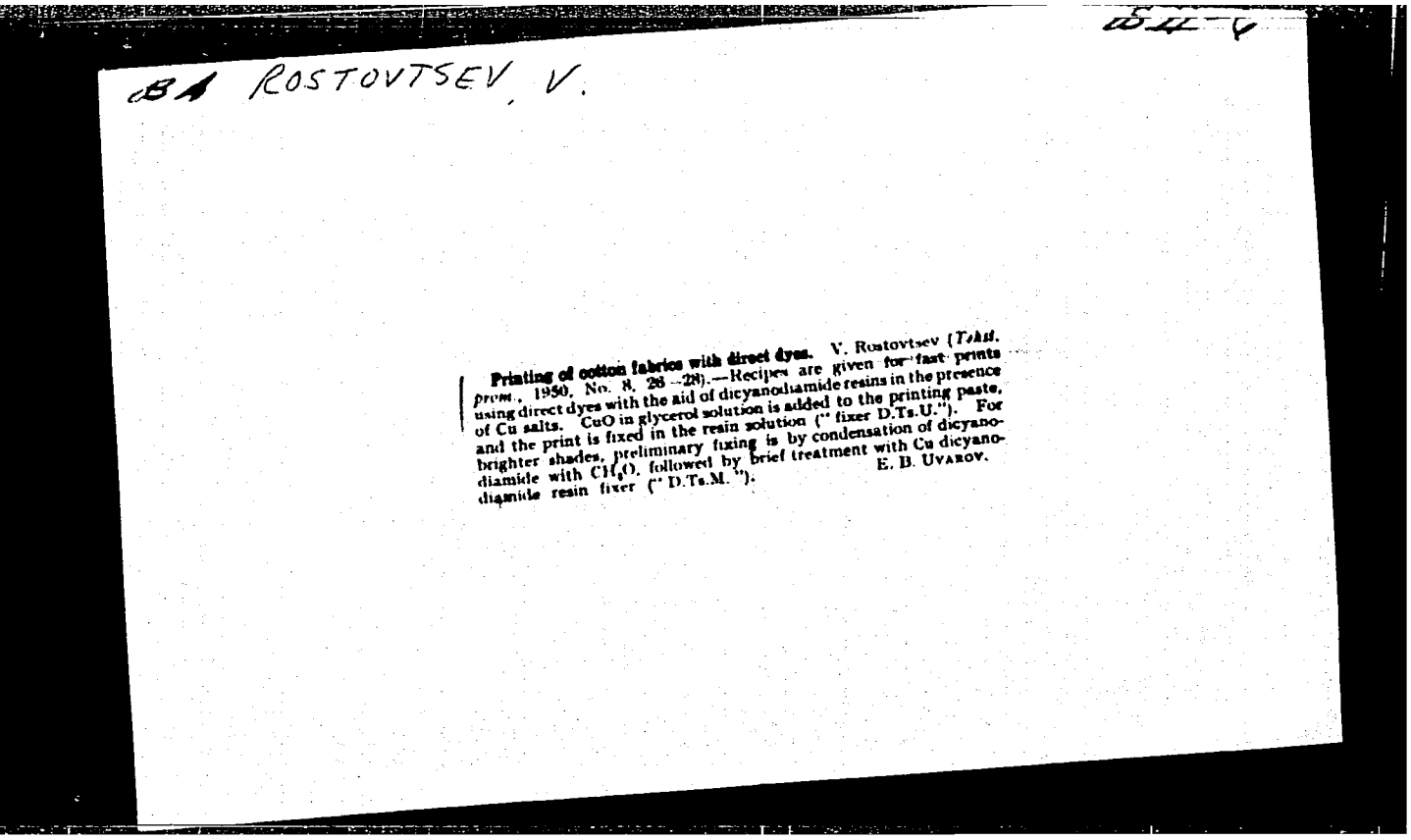
The rational formulation of a bleaching process. V. E. Rostovtsev. *Tekstil. Prom.* 7, No. 10, 28-30(1947). Impregnating of cotton fibers with acid solns. of Chloramine-T in the presence of wetting agents was found to be superior to the usual emulsion processes. The following steps were recommended: (1) treatment with a soln. contg. 3–4 g./l. of Chloramine, 4 g./l. of acid Kontakt, and 0.1 g./l. of a Cu salt at 90–92° for 1–2 min.; (2) treatment with a soln. contg. 16 g./l. NaOH and 5 g./l. neutral Kontakt at 90–92° for 10 min., and (3) washing. M. S.



ROSTOVTSEV, V.

Printing of cotton fabrics with direct dyes. V. Rostovtsev (*Tekst. prom.*, 1950, No. 8, 26–28).—Recipes are given for fast prints using direct dyes with the aid of dicyanodiamide resins in the presence of Cu salts. CuO in glycerol solution is added to the printing paste, and the print is fixed in the resin solution (" fixer D.Ts.U."). For brighter shades, preliminary fixing is by condensation of dicyanodiamide with CH_2O, followed by brief treatment with Cu dicyanodiamide resin fixer (" D.Ts.M. ").

E. B. Uvarov.

CA

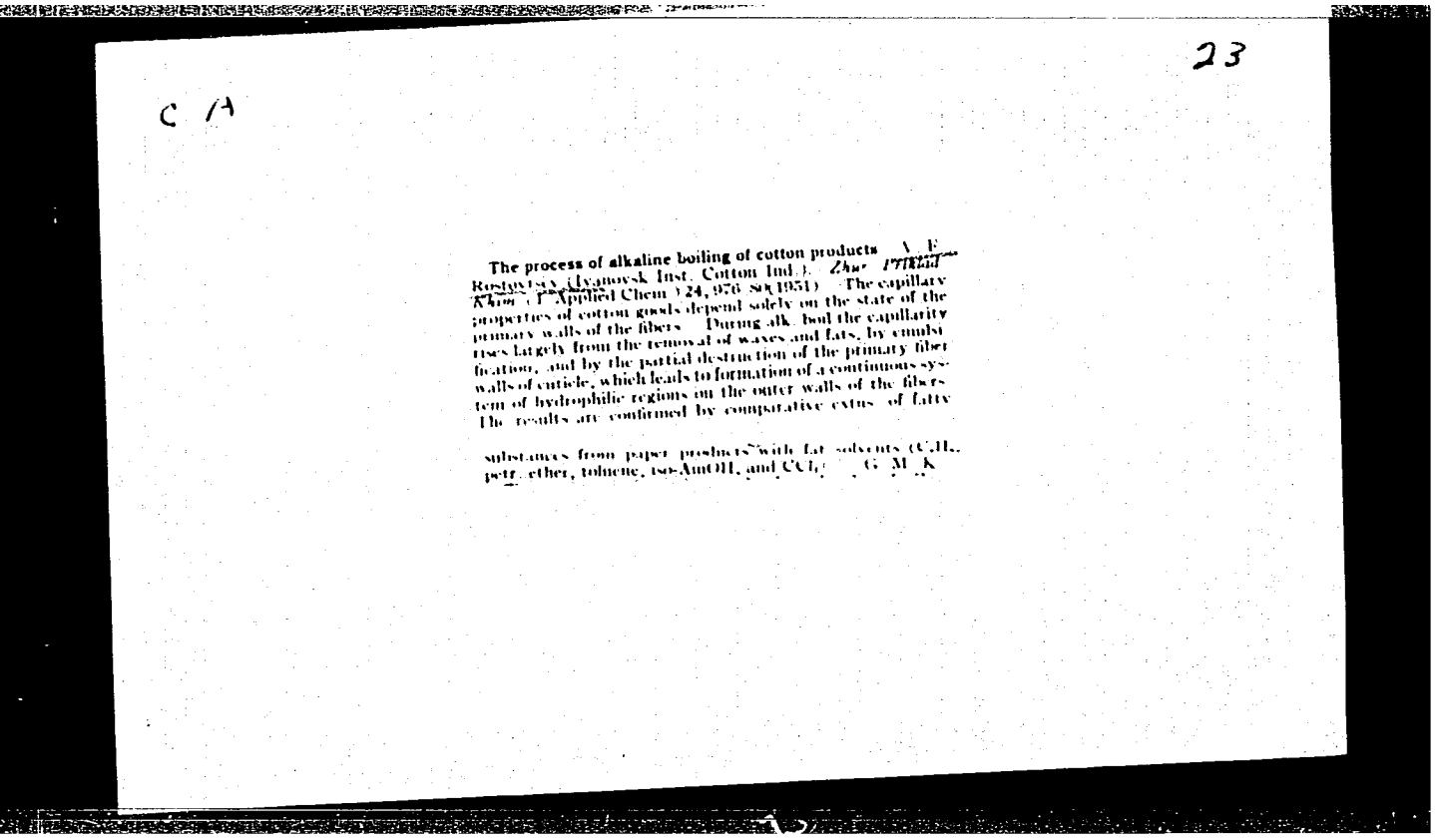
ROSTOVTSEV, V. E.

25

Improved dyeing of protein fibers with ice colors. V. E. Rostovtsev. *Tekstil. Prom.* 10, No. 11, 38-9(1950).—By dissolving β-naphthol derivs. (I) in EtOH-formalin mixt., the amt. of alkali required for their solubilization is reduced, thus decreasing the damaging effect of alkali on dyed silk or wool. To 10 g. I there are added 10 cc. EtOH, 4.5 cc. NaOH (40° Bé), and 4 cc. formalin (40%). After 30 min. at 50° this mixt. is poured into 20 cc. 50% Turkey Red oil, and 10 cc. 10% neutral gum and 800 cc. H_2O are added.
E. Barabash

CA 7

R. d determination of starch en masse and on cloth. V. E. Rostovtsev and Z. I. Maslennikova. *Nauch.-Issledovatel. Trudy. Inanov. Nauch.-Issledovatel. Inst. Khlopchatobumazh. Prom.* 18, 109–14(1951).—Boil 2 g. of cloth 3 min. in 15 ml. of a soln. contg. 2 g. Chloramine T, 3 g. neutral catalyst, 3 g. NaOH, and 0.1 g. $CuSO_4.5H_2O$ in one l. H_2O. Use the resulting soln. for the usual starch detn. (inversion of the sugar, etc.) by acidification with AcOH, addn. of 0.1 *N* I, and color comparison. G. M. Kosolapoff



23

C A

The process of alkaline boiling of cotton products. V. E. Rostgorskaya (Ivanovsk. Inst. Cotton Ind.). Zhur. Prikladnoi Khim. (J. Applied Chem.) 24, 970–80 (1951). The capillary properties of cotton goods depend solely on the state of the primary walls of the fibers. During alk. boil the capillarity rises largely from the removal of waxes and fats, by emulsification, and by the partial destruction of the primary fiber walls of cuticle, which leads to formation of a continuous system of hydrophilic regions on the outer walls of the fibers. The results are confirmed by comparative extns. of fatty substances from paper products with fat solvents (CCl_4, petr. ether, toluene, iso-AmOH, and CCl_4 + [illegible]. G. M. K.

ROSTOVTSEV, V.N., inzh.

Study of the structure of rocks in a massif. Izv.vys.ucheb.zav.; gor.zhur. no.3:53-58 '61. (MIRA 15:4)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva; rekomendovana kafedroy marksheyderskogo dela Sverdlovskogo gornogo instituta.
(Nev'yansk region--Faults (Geology))

ROSTOVTSEV, V.N., inzh.

Investigating occurrences of rock pressure in the "Nev'yanskaya Seredovina" deposit. Izv. vys. ucheb. zav. gor. zhur. no.8:31-38 '60. (MIRA 13:9)

1. Sverdlovskiy gornyy institut im. V.V. Vakhrusheva. Rekomendovana kafedroy marksheyderskogo dela.
(Ural Mountains--Rock pressure)

POSTOVTSEV, V. YE., MAKARONOVA, YE. S., GROMOVA, V. V.

Textile Chemistry

Neutralization of diazo solutions by means of chalk. Tekst. prom. 12 no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

ROSTOVTSEV, V. Ye., [illegible], V. V.

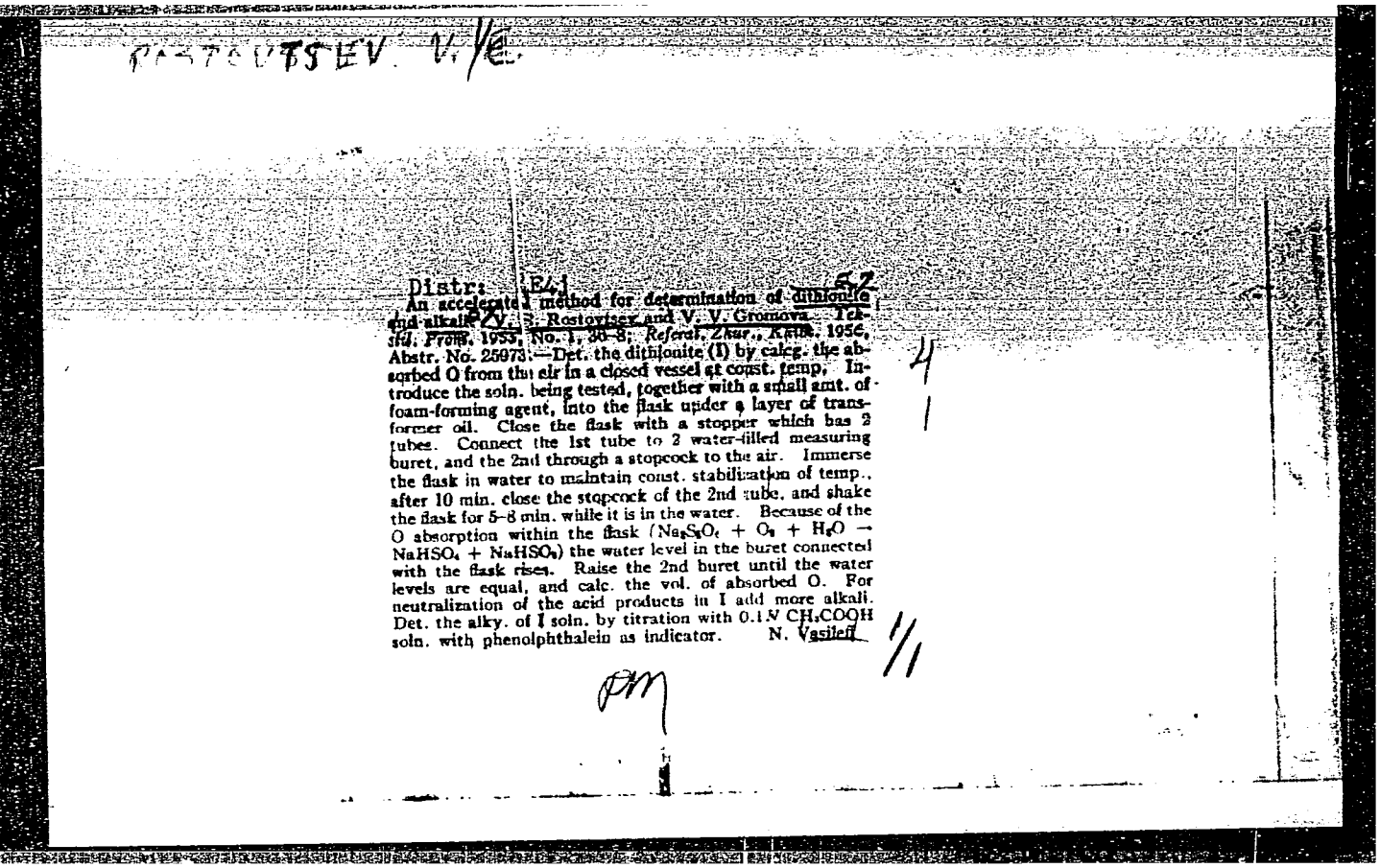
Diazole

Colorimetric method for determining diazoles,
Tekst. prom. no. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952 1953, Uncl.

ROSTOVSTEV, V.Ye.

Feeding of the mercerization bath. Tekstil'. Prom. 12, No.7, 35-6 '52. (MLRA 5:7)
(CA 47 no.21:11741 '53)



PASTUSTSEV, V. V.

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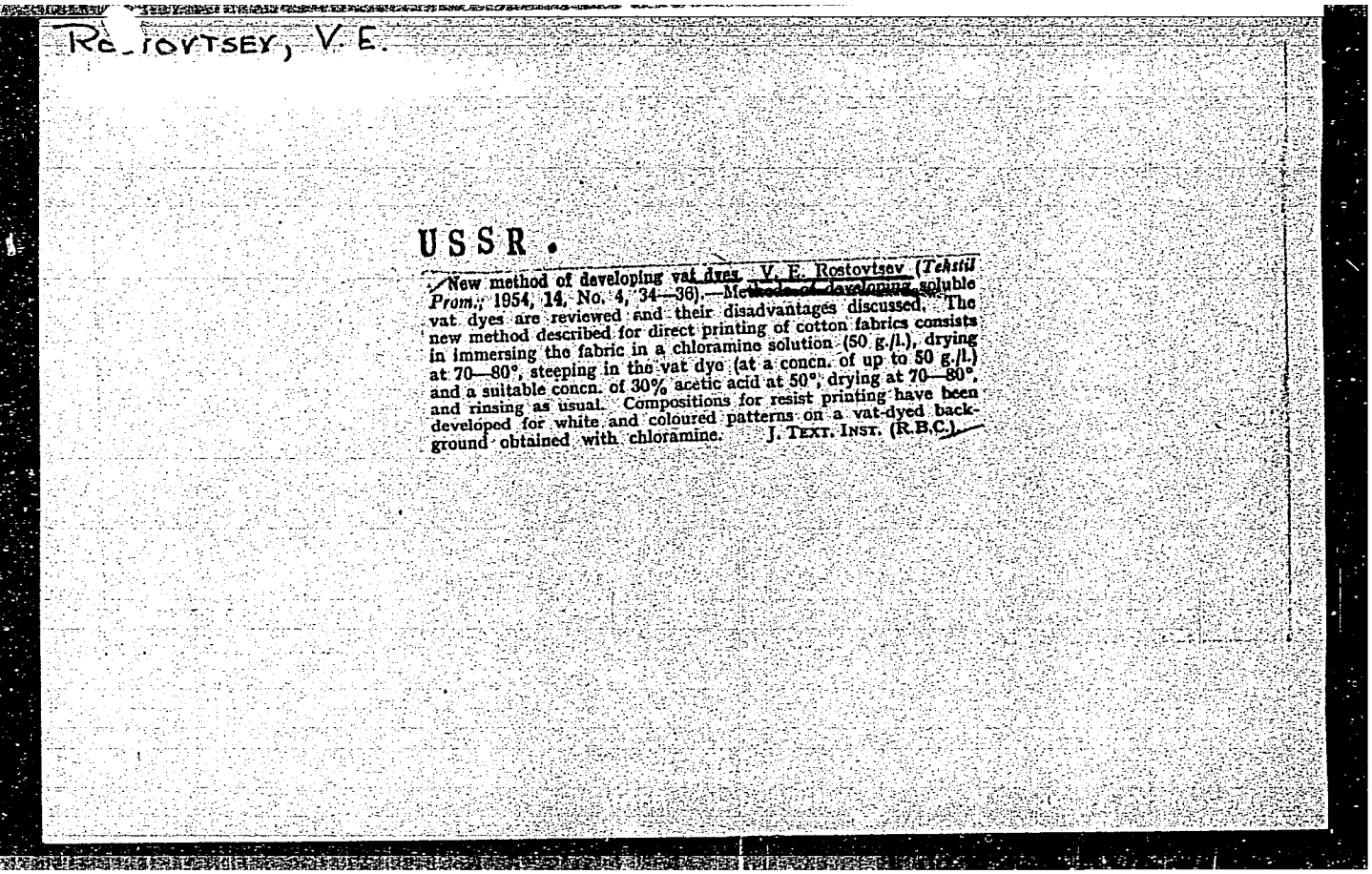
An accelerated method for determination of dithionite and alkali / V. S. Rostovtsev and V. V. Gromova. Tekst. Prom., 1955, No. 1, 36-8; *Referat. Zhur., Khim.*, 1956, Abstr. No. 25973.—Det. the dithionite (I) by calcg. the absorbed O from the air in a closed vessel at const. temp. Introduce the soln. being tested, together with a small amt. of foam-forming agent, into the flask under a layer of transformer oil. Close the flask with a stopper which has 2 tubes. Connect the 1st tube to 2 water-filled measuring buret, and the 2nd through a stopcock to the air. Immerse the flask in water to maintain const. stabilization of temp., after 10 min. close the stopcock of the 2nd tube, and shake the flask for 5–8 min. while it is in the water. Because of the O absorption within the flask ($Na_2S_2O_4 + O_2 + H_2O \rightarrow NaHSO_4 + NaHSO_5$) the water level in the buret connected with the flask rises. Raise the 2nd buret until the water levels are equal, and calc. the vol. of absorbed O. For neutralization of the acid products in I add more alkali. Det. the alky. of I soln. by titration with 0.1 *N* CH_3COOH soln. with phenolphthalein as indicator. N. Vasileff

ROSTOVTSEV, V. E.

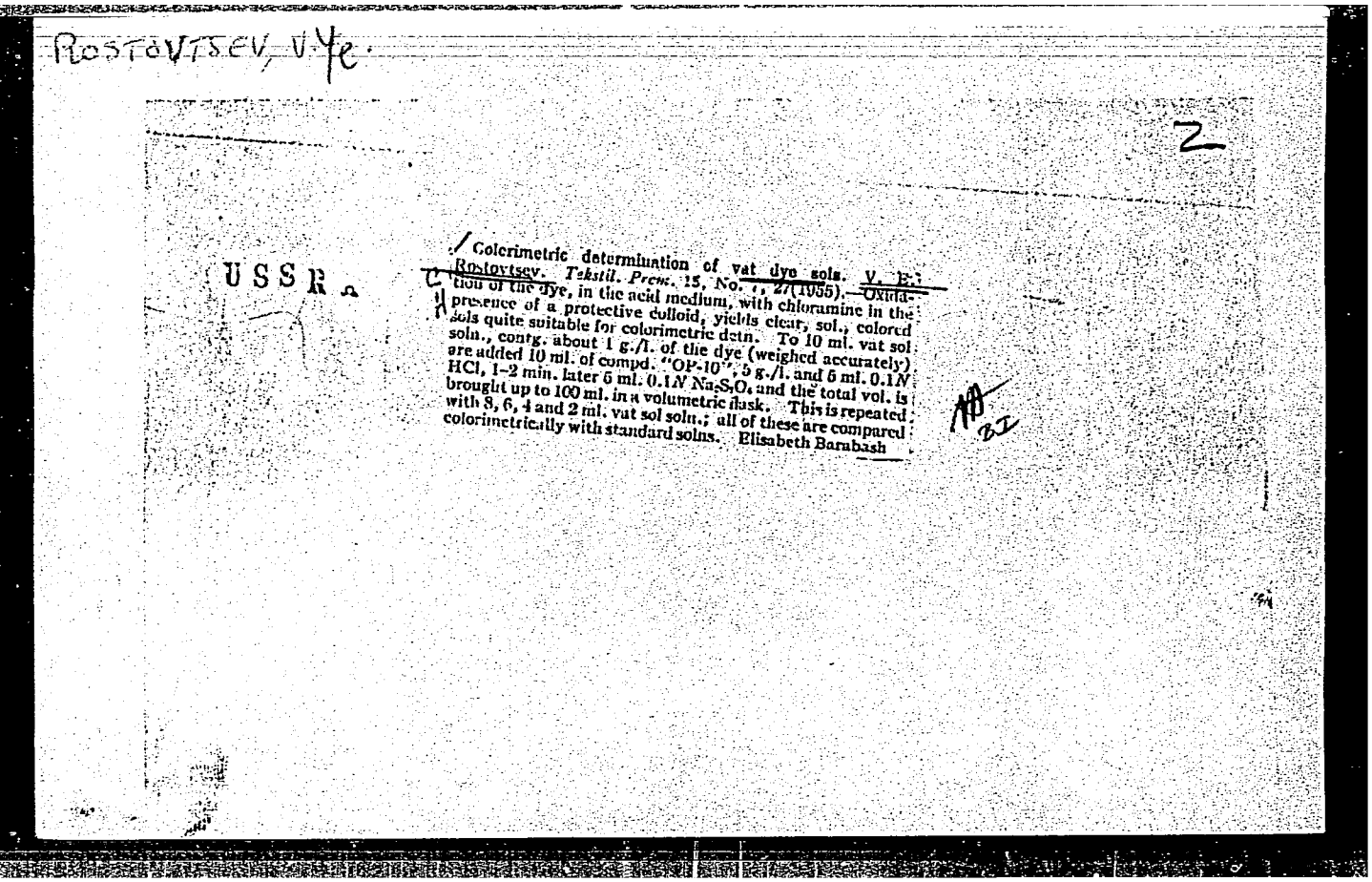
So-called optimum temperature in dyeing cotton with direct dyes. V. E. Rostovtsev. *Tekstil. Prom.* 14, No. 1, 38–9(1954).—The conception of a const. optimum temp. (I) in this instance has been shown to be erroneous, since I will vary with varying dyeing time and with the nature and concn. of electrolytes present in the dyeing bath. In a given time of dyeing, it should be carried out at the highest possible temp. while the optimum absorption of dye is reached by suitable concn. of electrolytes. E. B.



ROSTOVTSEV, V. E.

USSR.

New method of developing vat dyes. V. E. Rostovtsev (*Tekstil Prom.*, 1954, 14, No. 4, 34—36).—Methods of developing soluble vat dyes are reviewed and their disadvantages discussed. The new method described for direct printing of cotton fabrics consists in immersing the fabric in a chloramine solution (50 g./l.), drying at 70—80°, steeping in the vat dye (at a concn. of up to 50 g./l.) and a suitable concn. of 30% acetic acid at 50°, drying at 70—80°, and rinsing as usual. Compositions for resist printing have been developed for white and coloured patterns on a vat-dyed background obtained with chloramine. J. Text. Inst. (R.B.C.)



Rostovtsev, V.Ye.

2

USSR

Colorimetric determination of vat dye sols. V. E. Rostovtsev. *Tekstil. Prom.* 15, No. 1, 27(1955).—Oxidation of the dye, in the acid medium, with chloramine in the presence of a protective colloid, yields clear, sol., colored sols quite suitable for colorimetric detn. To 10 ml. vat sol soln., contg. about 1 g./l. of the dye (weighed accurately) are added 10 ml. of compd. "OP-10", 5 g./l. and 6 ml. 0.1*N* HCl, 1–2 min. later 6 ml. 0.1*N* $Na_2S_2O_3$ and the total vol. is brought up to 100 ml. in a volumetric flask. This is repeated with 8, 6, 4 and 2 ml. vat sol soln.; all of these are compared colorimetrically with standard solns. Elisabeth Barabash

AB BI

ROSTOVTSEV,V.Ye., kandidat tekhnicheskikh nauk

Single chloramine bath method for fixing "sol" dyes. Tekst.prom.15 no.8:37-38 Ag'55. (MLRA 8:11)

(Dyes and dyeing)

Rostovtsev, V. E.

CHK Dyeing of cotton and staple fabrics with direct dyes. V. E. Rostovtsev and V. V. Gromova. *Tekstil. Prom.* 15, No. 12, 41–2(1955).—This study, carried out with 7 direct dyes, showed the incorrectness of an assumption made earlier that the staple yarn (like other fibers made from hydrated cellulose) had a greater adsorption than cotton for direct dyes because of its open structure. Samples of dressed staple and cotton fabrics were dyed together in a bath contg. dye 2, Na_2CO_3 1.5, Glauber salt 20% (based on the sample wt.) with bath modulus 1:30 at 70–80° for 60 min., rinsed with hot and cold H_2O, dried, and extd. with 25% aq. C_5H_5N. The amt. of dye adsorbed was then detd. colorimetrically. Assuming the content of dye of the cotton equal to 100%, it varied on the staple from 28.6 (Turquoise Light Fast) to 132.6 (violet). It is postulated that the steric configuration of the dye dets. its adsorption by fabric. By opening the staple (treating it at 80° for 10 sec. with 10% NaOH, rinsing, and drying) the amt. of red dye absorbed increased from the initial 69% to 106.5%.

Elisabeth Barabash

ROSTOVTSEV, V.Ye., kandidat tekhnicheskikh nauk.

Improving continuous dyeing of cotton fabrics with sulfur dyes.
Tekst.prom. 16 no.11:36-37 N '56. (MLRA 9:12)
(Dyes and dyeing--Cotton)

ROSTOVTSEV, V.Ye., kandidat tekhnicheskikh nauk.

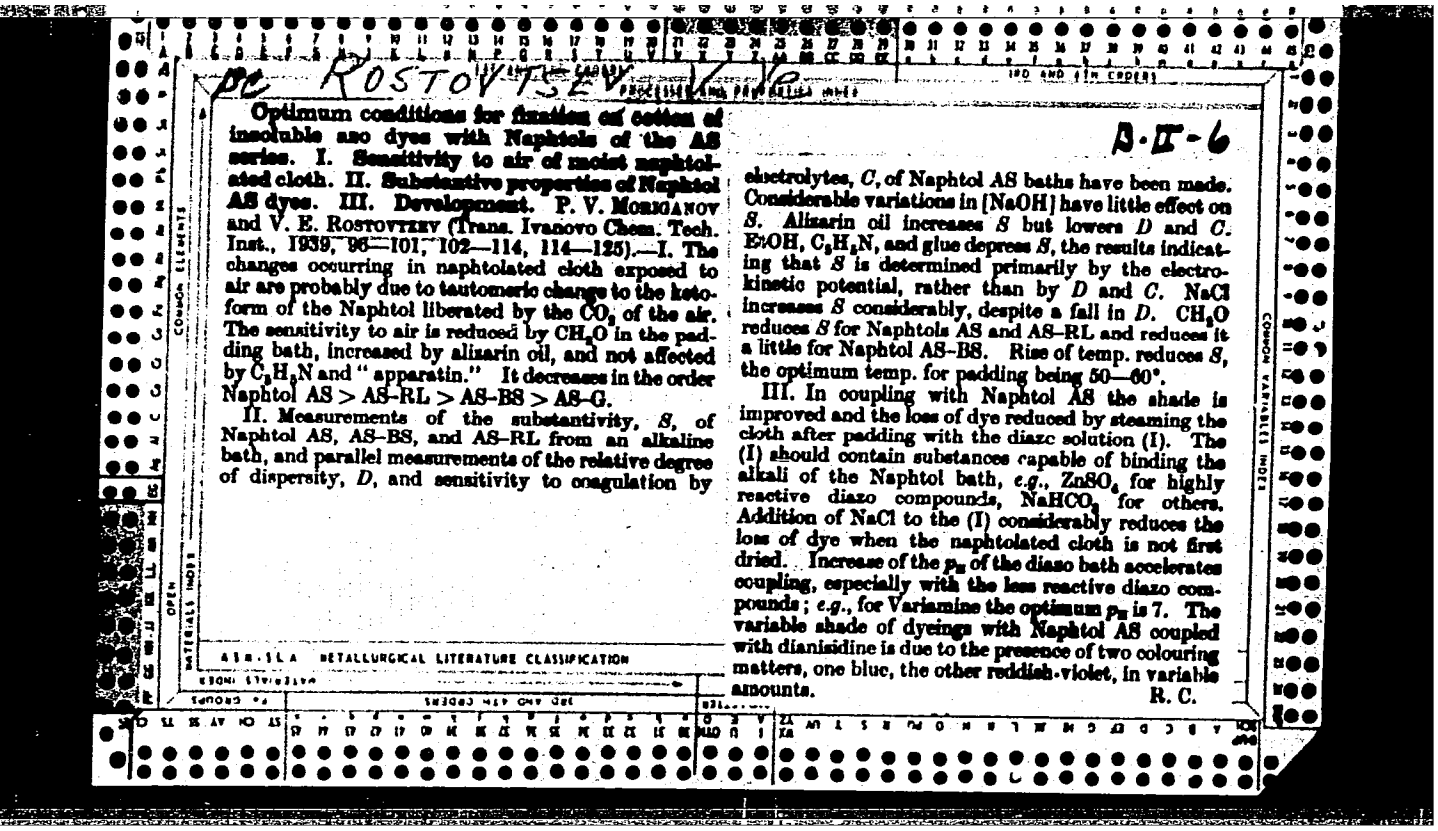
New method of developing acid dyes on cotton fabrics. Tekst.prom. 17 no.2:37-39 F '57. (MLRA 10:2)
(Dyes and dyeing--Cotton)

ROSTOVTSEV, V. Ye., kandidat tekhnicheskikh nauk.

Increasing the diffusion of dyestuffs in cellulose. Test.prom. 17 no.6:39-41 Je '57. (MLRA 10:7)
(Dyes and dyeing--Cellulose)

ROSTOVTSEV, V.Ye., kand.tekhn.nauk

Improving fabric dyeing with basic dyes. Tekst. prom. 18 no.3:41-44 Mr '58. (MIRA 11:3)
(Dyes and dyeing)



RC ROSTOVTSEV V.Ye.

B-II-6

Optimum conditions for fixation on cotton of insoluble azo dyes with Naphtols of the AS series. I. Sensitivity to air of moist naphtolated cloth. II. Substantive properties of Naphtol AS dyes. III. Development. P. V. MORGANOV and V. E. ROSTOVTSEV (Trans. Ivanovo Chem. Tech. Inst., 1939, 96—101, 102—114, 114—125).—I. The changes occurring in naphtolated cloth exposed to air are probably due to tautomeric change to the keto-form of the Naphtol liberated by the CO_2 of the air. The sensitivity to air is reduced by CH_2O in the padding bath, increased by alizarin oil, and not affected by C_5H_5N and "apparatin." It decreases in the order Naphtol AS > AS-RL > AS-BS > AS-G.

II. Measurements of the substantivity, *S*, of Naphtol AS, AS-BS, and AS-RL from an alkaline bath, and parallel measurements of the relative degree of dispersity, *D*, and sensitivity to coagulation by electrolytes, *C*, of Naphtol AS baths have been made. Considerable variations in [NaOH] have little effect on *S*. Alizarin oil increases *S* but lowers *D* and *C*. EtOH, C_5H_5N, and glue depress *S*, the results indicating that *S* is determined primarily by the electrokinetic potential, rather than by *D* and *C*. NaCl increases *S* considerably, despite a fall in *D*. CH_2O reduces *S* for Naphtols AS and AS-RL and reduces it a little for Naphtol AS-BS. Rise of temp. reduces *S*, the optimum temp. for padding being 50—60°.

III. In coupling with Naphtol AS the shade is improved and the loss of dye reduced by steaming the cloth after padding with the diazo solution (I). The (I) should contain substances capable of binding the alkali of the Naphtol bath, *e.g.*, $ZnSO_4$ for highly reactive diazo compounds, $NaHCO_3$ for others. Addition of NaCl to the (I) considerably reduces the loss of dye when the naphtolated cloth is not first dried. Increase of the p_H of the diazo bath accelerates coupling, especially with the less reactive diazo compounds; *e.g.*, for Variamine the optimum p_H is 7. The variable shade of dyeings with Naphtol AS coupled with dianisidine is due to the presence of two colouring matters, one blue, the other reddish-violet, in variable amounts.

R. C.

ROSTOVTSEV, V.Ye., kand.tekhn.nauk

Heat resistance of the aqueous solutions of direct dyes.
Tekst.prom. 21 no.6:54-57 Je '61. (MIRA 15:2)
(Dyes and dyeing)

ROSTOVTSEV, V.Ye., kand.tekhn.nauk

New methods of purifying direct dyes. Tekst.prom. 21 no.7:63-64 Jl '61. (MIRA 14:8)
(Dyes and dyeing)

ROSTOVTSEV, V.Ye., kand.tekhn.nauk

Single-bath suspension method for dyeing with vat dyes. Tekst. prom. 21 no. 4:41-44 Ap '61. (MIRA 14:7)
(Dyes and dyeing—Textile fibers)

ROSTOVTSEV, V. Ye.

Theory of continuous dyeing. Report No.4: Effect of dye concentration in the vat on dye absorption. Nauch.-issl.trudy IvNITI 23:162-165 '59. (MIRA 14:4)

(Dyes and dyeing)

ROSTOVTSEV, V. Ye.

Theory of continuous dyeing. Report No.5: Effect of the circulation of the dyeing liquor through the fabric on dye absorption. (MIRA 14:4)
Nauch.-issl.trudy. IvNITI 23:165-167 '59.
(Dyes and dyeing)

ROSTOVTSEV, V.Ye., kand.tekhn.nauk

Discharge printing of white and color patterns on fabrics dyed with fast turquoise dyes. Tekst.prom. 20 no.6:38-40 Je '60. (MIRA 13:7)

(Textile printing)

ROSTOVTSEV, V.Ye., kand. tekhn. nauk

Improving color fastness of fabrics dyed with insoluble azo dyes. Tekst. prom. 18 no.2:48-50 F '58. (MIRA 13:3)
(Azo dyes) (Textile fabrics)

ROSTOVTSEV, V.Ye., kand.tekhn.nauk; TRAKHTENBERG, R.M., inzh.

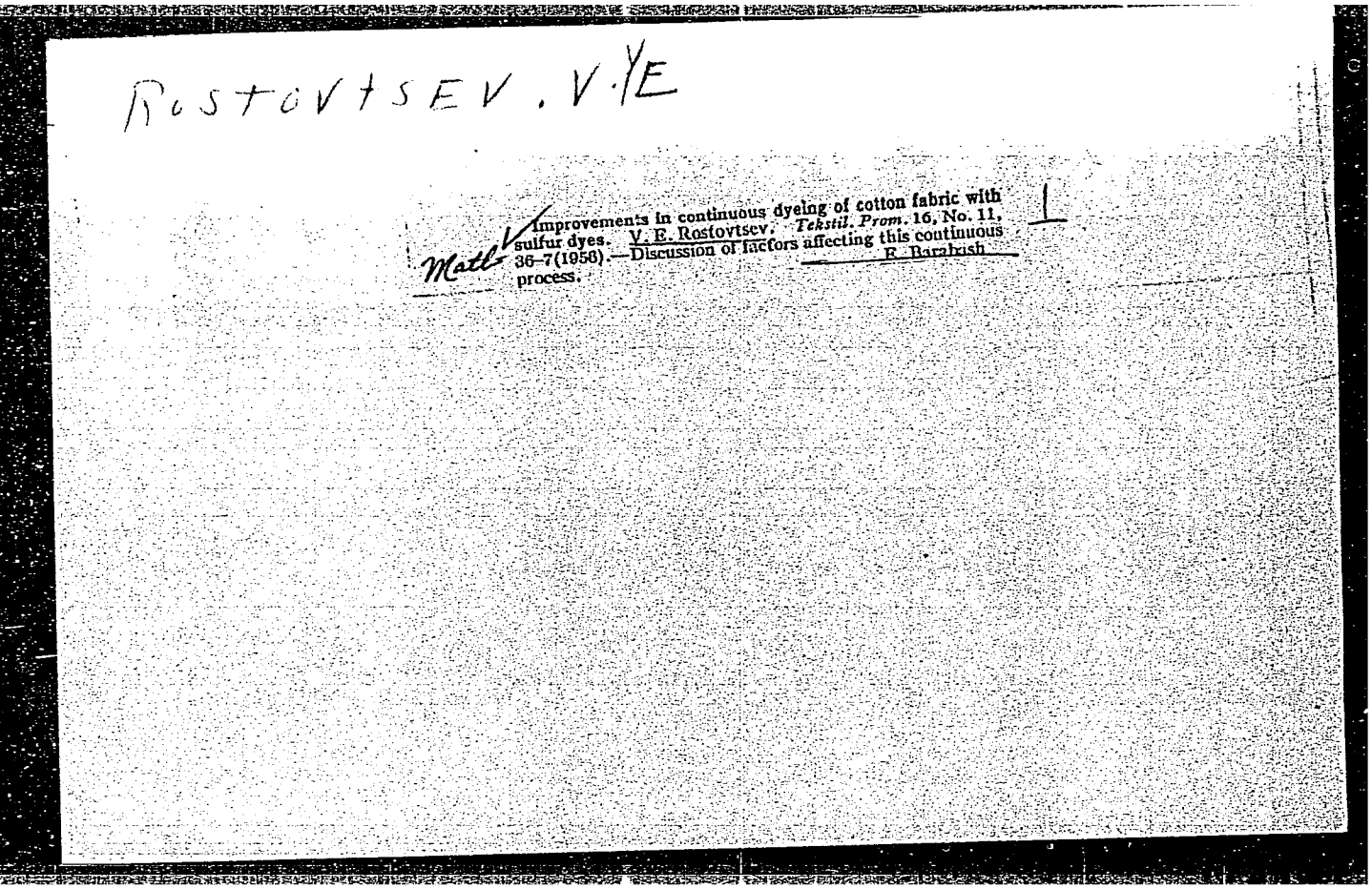
Dyeing fabrics under the effect of electric currents. Tekst.prom. 19 no.4:55-58 Ap '59. (MIRA 12:6)
(Dyes and dyeing--Apparatus) (Electrochemistry)

ROSTOVTSEV, V.Ye.

Damper of a TT-160 loom. Obm.tekh.opyt. [MLP] no.15:26-27 '56.
(Looms)

ROSTOVTSEV, V.Ye.

Key for beam turning. Obm.tekh.opyt. [MLP] no.15:29 '56.
(Looms) (MIRA 11:11)



ROSTOVTSEV, V. YE

Matls

Improvements in continuous dyeing of cotton fabric with sulfur dyes. V. E. Rostovtsev. *Tekstil. Prom.* 16, No. 11, 36–7(1958).—Discussion of factors affecting this continuous process. E. Barabish

1

Rostovtsev, Yu. G.

INFORMATION THEORY

"Correlation Function and Energy Spectrum of Speech Signals that are Strongly Limited in Amplitude" by Yu. G. Rostovtsev. Elektrosvyaz', No 12, December 1957, pp 45-49.

The author calculates the correlation function and the energy spectrum of speech signals that are limited to such an extent (above 40-50 db) as to have the signal acquire rectangular form, whose jumps take place at the instance when the values of the speech signal are zero, meaning that the sensible information is carried by the zero points of the signal.

Card: 1/1 -5-

AUTHOR: Rostovtsev, Yu.G. SOV/106-58-6-7/13

TITLE: The Possibility of Using Extreme Amplitude Limiting of Speech Signals in Communication Systems (O vozmozhnosti primeneniya v sistemakh svyazi predel'nogo amplitudnogo ogranicheniya rechevykh signalov)

PERIODICAL: Elektrosvyaz', 1958, Nr 6, pp 49 - 52 (USSR)

ABSTRACT: The article describes the results of experiments on the articulation of speech signals which are passed through amplifier and limiter stages. In some of the experiments, linear four-terminal networks with various frequency characteristics were connected before and after the limiter. The interference stability of such systems against fluctuating interference and against pulses of constant amplitude but random occurrence was also investigated. Amplitude limiting improves the interference stability.

The block diagram of the experimental set-up is given in Figure 2. Here: 1) the amplifier; 2) linear filter; 3) amplitude limiter; 4) linear filter; 5) mixer; 6) interference generator; 7) amplifier; 8) amplitude limiter. The diagram contains 3 blocks. In the interference-free experiments, block 1 only is used; in the experiments with interference, all three blocks are used.

Cardl/2

SOV/106-58-6-7/13

The Possibility of Using Extreme Amplitude Limiting of Speech Signals in Communication Systems

The degree of limiting was variable from 10 - 80 db. Differentiating, integrating and filtering elements could be switched-in before and after the limiter. Articulation tables from Ref 2 were used. The results of the experiments are given graphically in Figures 3, 4 and 5. The results showed: a) Reduction of articulation due to limiting is insignificant; b) Differentiation before limiting increases the articulation and integration after limiting improves the subjective qualities of the speech; c) The interference-stability of a communication system increases sharply when amplitude limiting is used. d) For noisy channels, 35 - 50 db is the optimum limiting level. There are 5 figures and 4 references, 3 of which are Soviet and 1 English.

SUBMITTED: April 10, 1957

Card 2/2

1. Speech transmission--Intelligibility 2. Communication systems--Control systems 3. Amplifiers--Performance 4. Limiters--Performance

108-13-4-8/12

AUTHOR: Rostovtsev, Yu.G.

TITLE: On the Laws of the Distribution of Zero- and Extreme Points in the Signals of Russian Speech in the Case of Strong Amplitude Limitation (O zakonakh raspredeleniya nulevykh i ekstremal'nykh tochek signalov russkoy rechi pri sil'nom ogranichenii ikh po amplitude)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 4, pp. 63-67 (USSR)

ABSTRACT: A method of determining the probability of the frequency with which the impulses emitted follow one another in the connecting channel is described. The average frequencies of the sequence of zero- and extreme values of speech signals are determined and the curves warranting a good approximation for the laws of distribution obtained are given. The following results were obtained by the investigation:
1.) The complete average number of zeros in the time unit is 2780, that of the extreme values is 4700. Herefrom it may be seen that the velocity of pulse emission during differentiation of the signal is nearly double that obtained without differentiation. Differentiation of the signal before the limiter increases

Card 1/2

articulation by from 7 to 10%. Therefore such a low degree of increase of articulation hardly justifies an essential increase of the frequency of pulse emission.

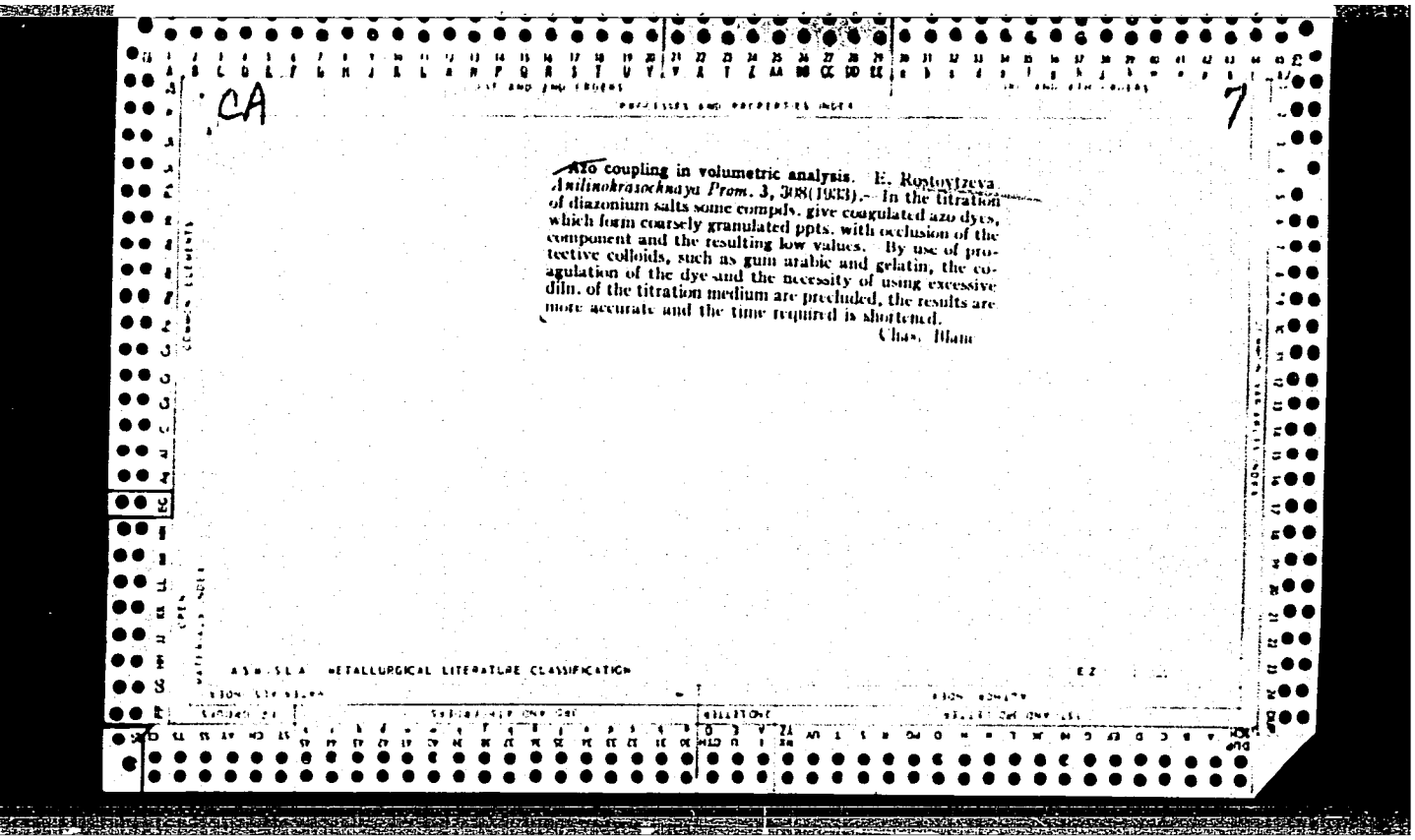
2.) It is shown that the probability for the occurrence of an interval between the zeros that is less than 0.2 msecs. is about 1%. If, therefore, the intervals between the zeros are transmitted with an accuracy of 0.1 msecs., it may be expected that articulation will be considerable. With a further increase of accuracy in the transmission of intervals, the increase of articulation will, however, be insignificant.

3.) The law of distribution for the intervals attains a maximum at 0.825 msecs. Therefore it is possible to reduce the velocity of pulse emission in the connecting channel considerably if not the intervals actually occurring between the zeros but the differences between them with an interval of 0.825 msecs. are transmitted. There are 5 figures and 5 references, 3 of which are Soviet.

SUBMITTED: February 22, 1957

AVAILABLE: Library of Congress

Card 2/2 1. Transmission--Analysis 2. Frequencies---Applications 3. Amplitude modulation--Applications

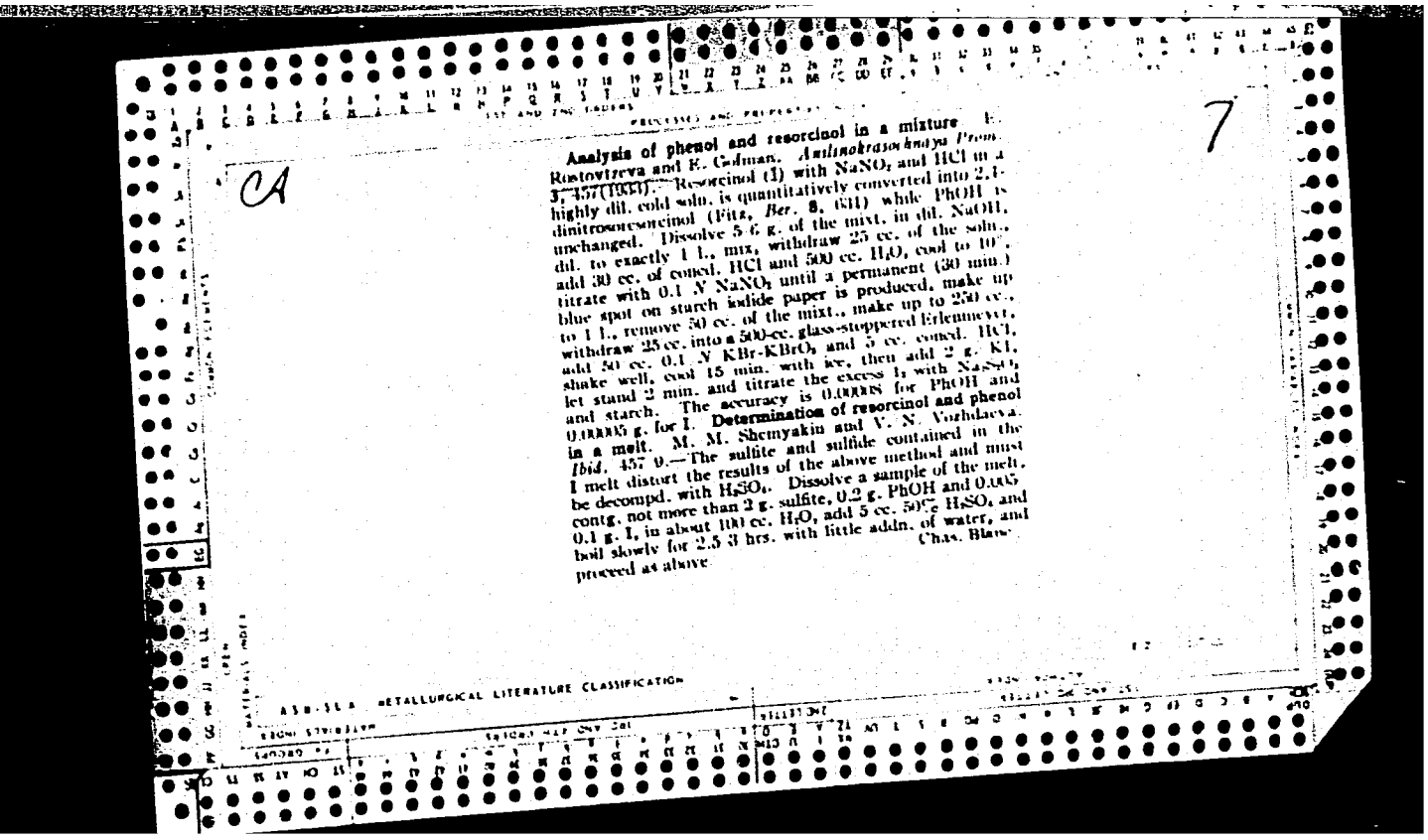


CA

7

Azo coupling in volumetric analysis. E. Rostovtzeva *Anilinokrasochnaya Prom.* 3, 308(1933).- In the titration of diazonium salts some compds. give coagulated azo dyes, which form coarsely granulated ppts. with occlusion of the component and the resulting low values. By use of protective colloids, such as gum arabic and gelatin, the coagulation of the dye and the necessity of using excessive diln. of the titration medium are precluded, the results are more accurate and the time required is shortened.

Chas. Blanc

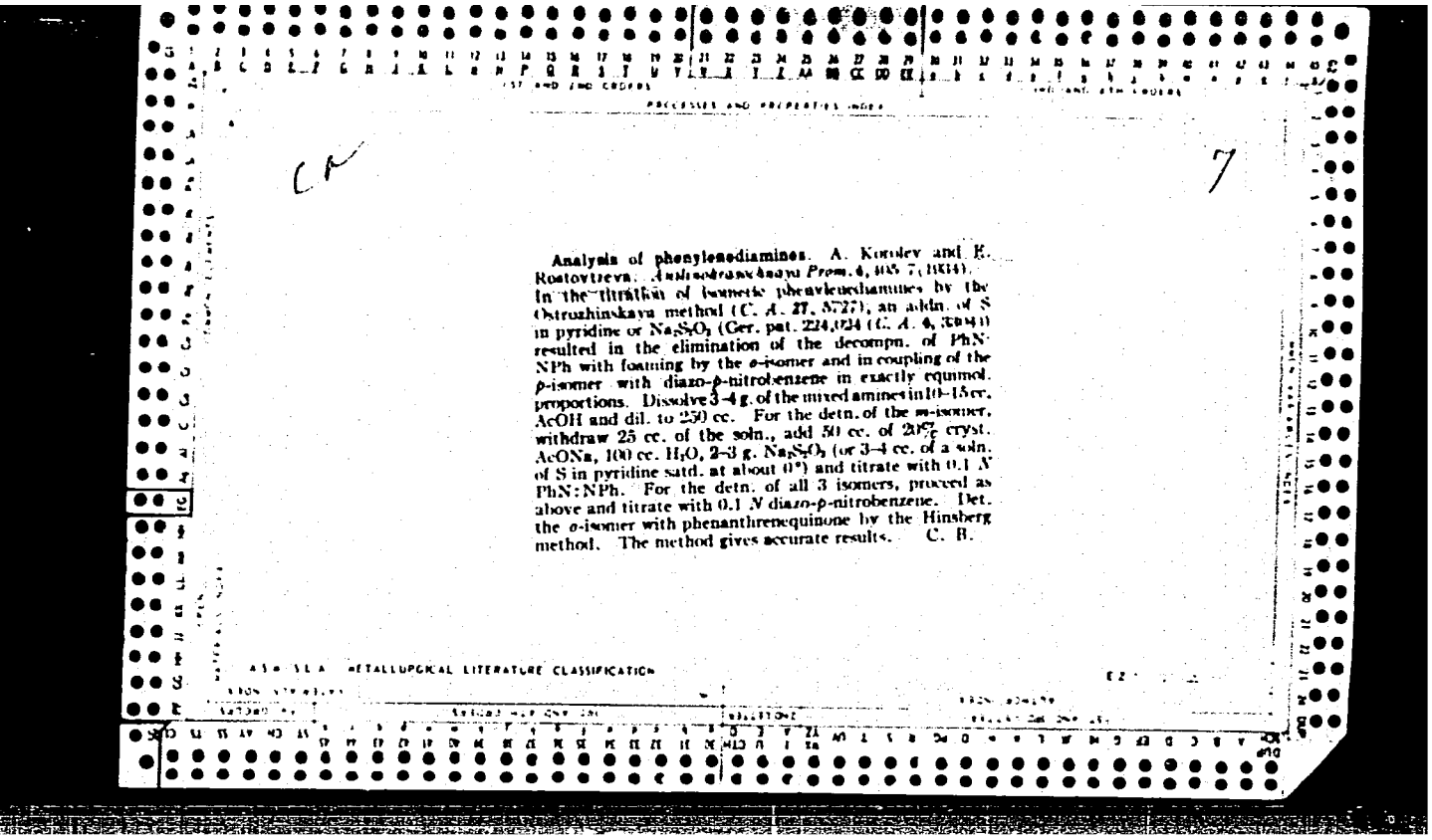


CA

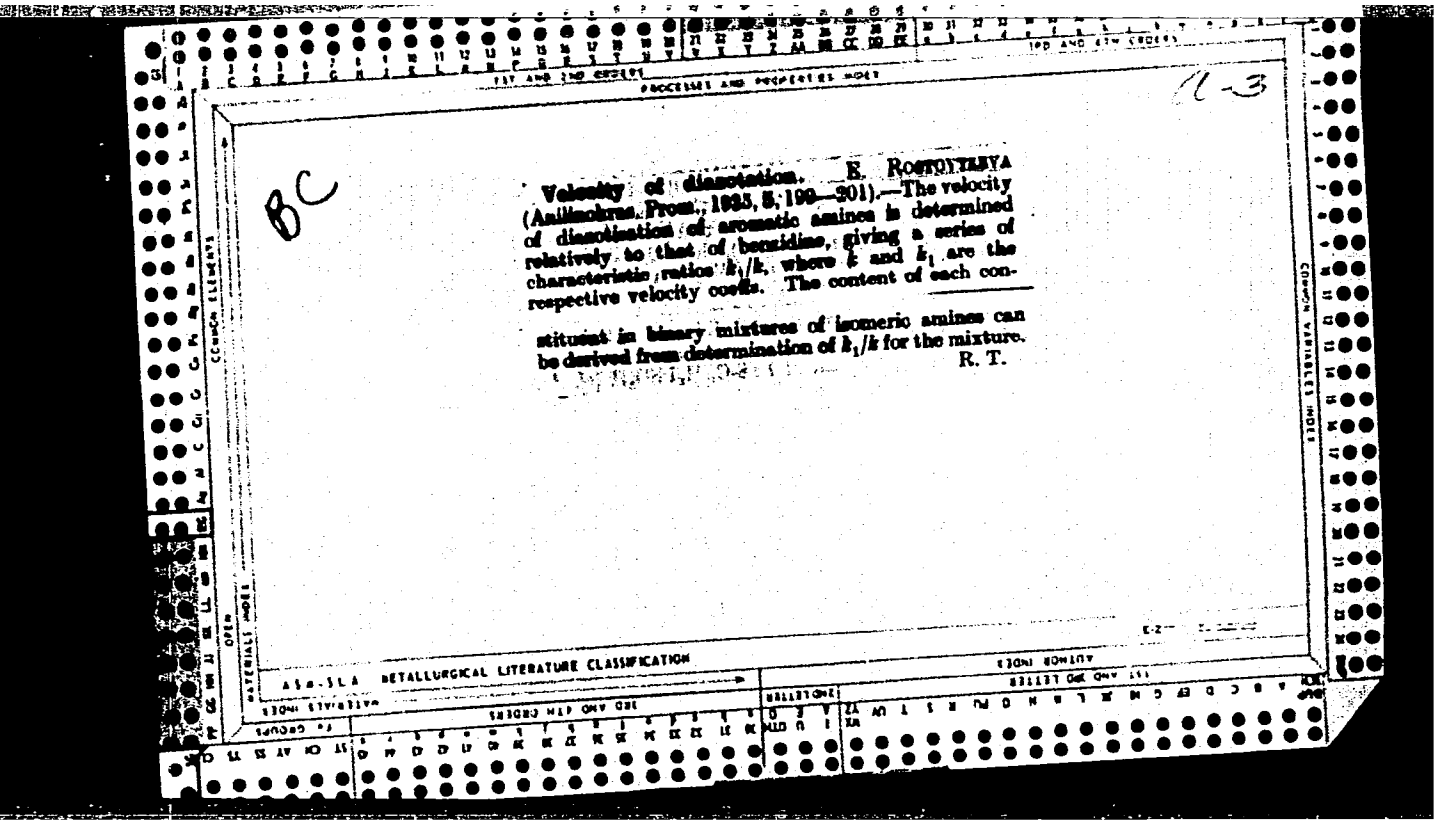
7

Analysis of phenol and resorcinol in a mixture. L. Rostovtzeva and E. Gelman. *Avtomobrasochnaya Prom.* 3, 457 (1935).—Resorcinol (I) with $NaNO_2$ and HCl in a highly dil. cold soln. is quantitatively converted into 2,4-dinitrosoresorcinol (Fitz, *Ber.* 8, 611) while PhOH is unchanged. Dissolve 5.6 g. of the mixt. in dil. NaOH, dil. to exactly 1 l., mix, withdraw 25 cc. of the soln., add 30 cc. of concd. HCl and 500 cc. H_2O, cool to 10°, titrate with 0.1 *N* $NaNO_2$ until a permanent (30 min.) blue spot on starch iodide paper is produced, make up to 1 l., remove 50 cc. of the mixt., make up to 250 cc., withdraw 25 cc. into a 500-cc. glass-stoppered Erlenmeyer, add 50 cc. 0.1 *N* KBr-$KBrO_3$ and 5 cc. concd. HCl, shake well, cool 15 min. with ice, then add 2 g. KI, let stand 2 min. and titrate the excess I with $Na_2S_2O_3$ and starch. The accuracy is 0.0008 for PhOH and 0.00885 g. for I. **Determination of resorcinol and phenol in a melt.** M. M. Shemyakin and V. N. Vorhdaeva. *Ibid.* 457 9.—The sulfite and sulfide contained in the I melt distort the results of the above method and must be decompd. with H_2SO_4. Dissolve a sample of the melt, contg. not more than 2 g. sulfite, 0.2 g. PhOH and 0.005 0.1 g. I, in about 100 cc. H_2O, add 5 cc. 50% H_2SO_4 and boil slowly for 2.5 3 hrs. with little addn. of water, and proceed as above. Chas. Blanc

A58-5LA METALLURGICAL LITERATURE CLASSIFICATION



Analysis of phenylenediamines. A. Kondev and E. Rostovtseva. *Analiticheskaya Prom.* 4, 405-7 (1934). In the titration of isomeric phenylenediamines by the Ostrozhinskaya method (*C. A.* **27**, 5727), an addn. of S in pyridine or $Na_2S_2O_3$ (Ger. pat. 224,024 (*C. A.* **6**, 3044)) resulted in the elimination of the decompn. of PhN:NPh with foaming by the *o*-isomer and in coupling of the *p*-isomer with diazo-*p*-nitrobenzene in exactly equimol. proportions. Dissolve 3–4 g. of the mixed amines in 10–15 cc. AcOH and dil. to 250 cc. For the detn. of the *m*-isomer, withdraw 25 cc. of the soln., add 50 cc. of 20% cryst. AcONa, 100 cc. H_2O, 2–3 g. $Na_2S_2O_3$ (or 3–4 cc. of a soln. of S in pyridine satd. at about 0°) and titrate with 0.1 *N* PhN:NPh. For the detn. of all 3 isomers, proceed as above and titrate with 0.1 *N* diazo-*p*-nitrobenzene. Det. the *o*-isomer with phenanthrenequinone by the Hinsberg method. The method gives accurate results. C. B.

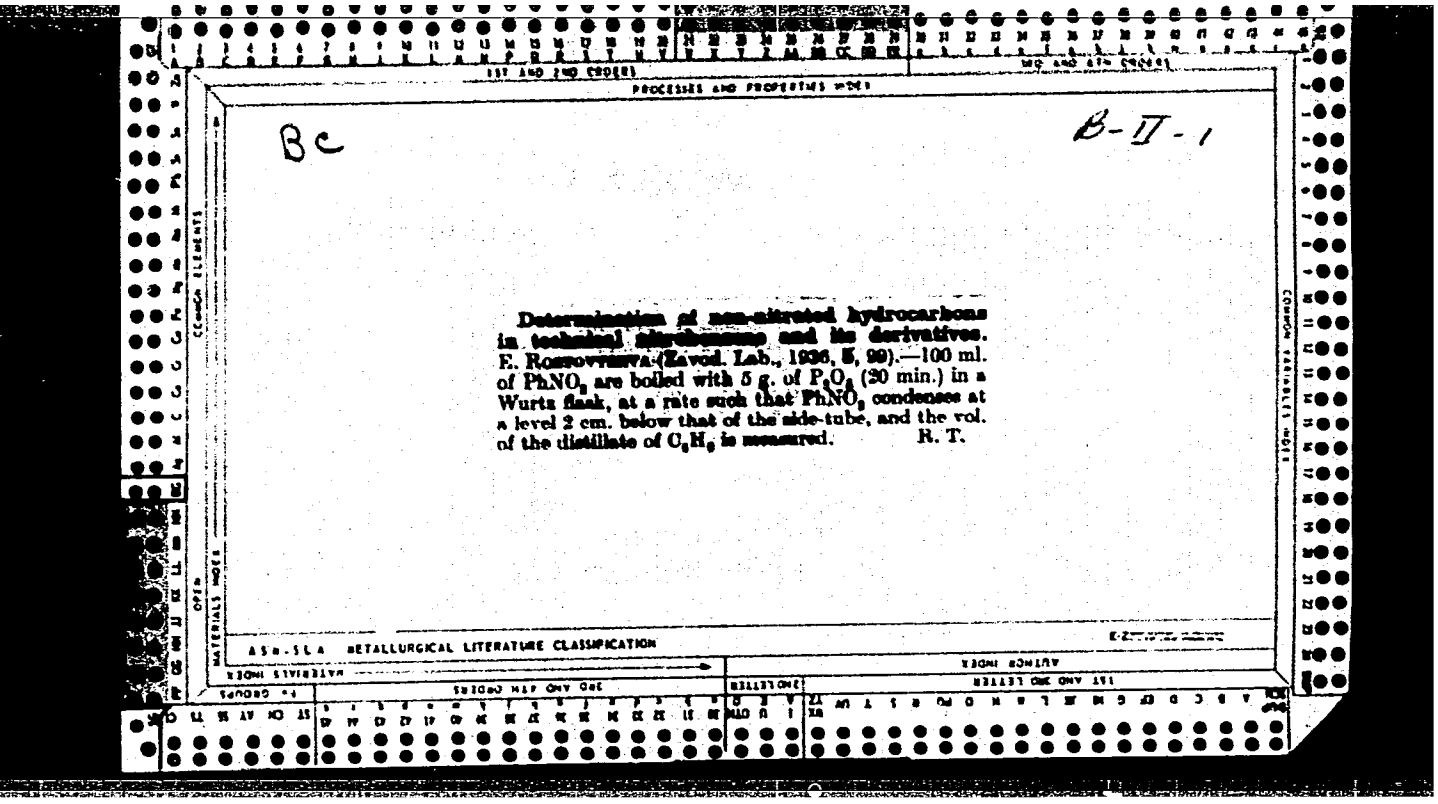


BC

11-3

Velocity of diazotisation. E. Rostovtseva (Anilinokras. Prom., 1935, 5, 199—201).—The velocity of diazotisation of aromatic amines is determined relatively to that of benzidine, giving a series of characteristic ratios k_1/k, where k and k_1 are the respective velocity coeffs. The content of each constituent in binary mixtures of isomeric amines can be derived from determination of k_1/k for the mixture.

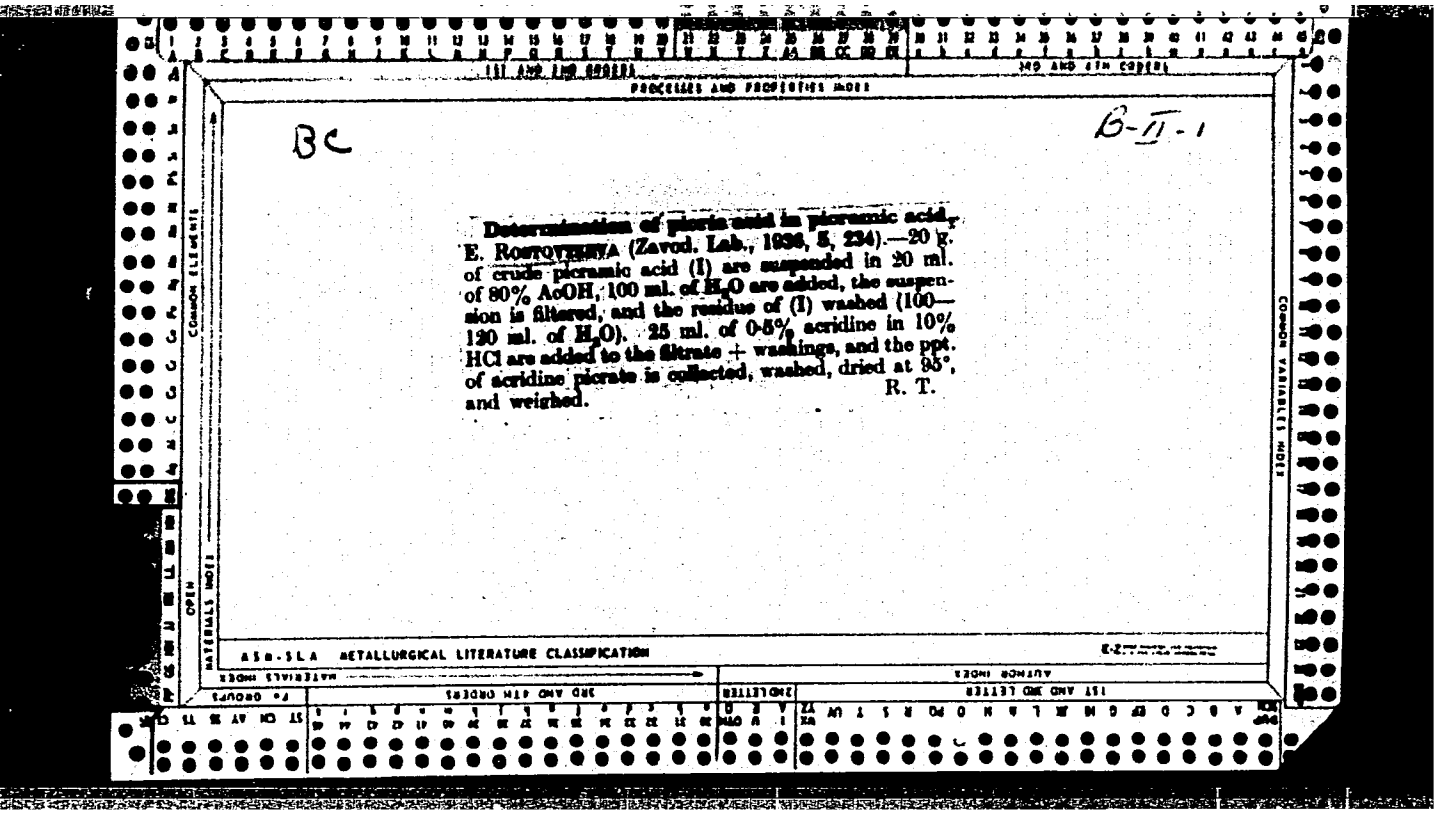
R. T.



Bc

B-II-1

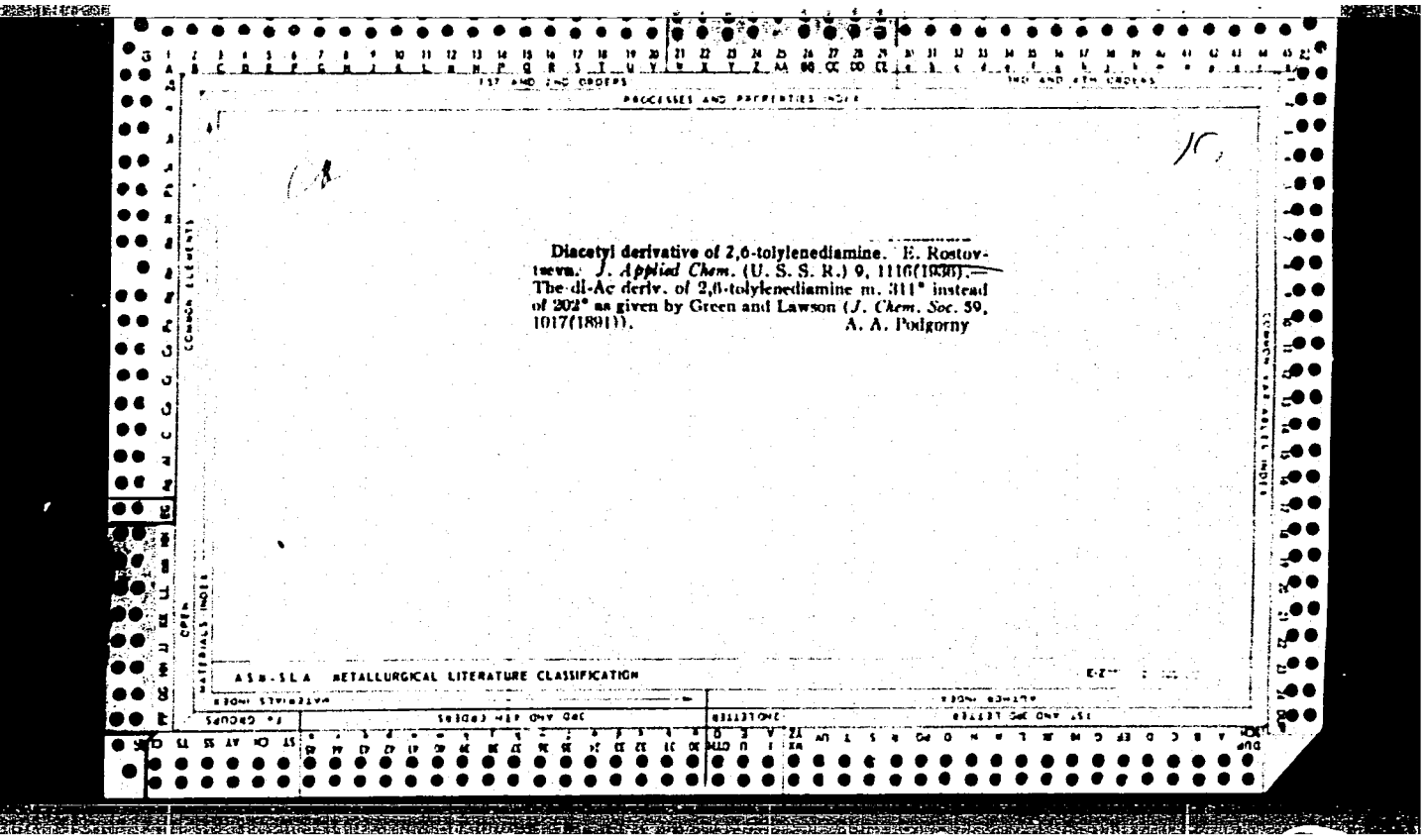
Determination of non-nitrated hydrocarbons in technical nitrobenzene and its derivatives. F. Rossovskaya (Zavod. Lab., 1936, 5, 99).—100 ml. of $PhNO_2$ are boiled with 5 g. of P_2O_5 (30 min.) in a Wurtz flask, at a rate such that $PhNO_2$ condenses at a level 2 cm. below that of the side-tube, and the vol. of the distillate of C_6H_6 is measured. R. T.



BC

B-II-1

Determination of picric acid in picramic acid. E. ROSTOVTSEVA (Zavod. Lab., 1936, 5, 234).—20 g. of crude picramic acid (I) are suspended in 20 ml. of 80% AcOH, 100 ml. of H_2O are added, the suspension is filtered, and the residue of (I) washed (100—120 ml. of H_2O). 25 ml. of 0·5% acridine in 10% HCl are added to the filtrate + washings, and the ppt. of acridine picrate is collected, washed, dried at 95°, and weighed. R. T.



Diacetyl derivative of 2,6-tolylenediamine. E. Rostovtseva. *J. Applied Chem.* (U. S. S. R.) 9, 1116(1936). The di-Ac deriv. of 2,6-tolylenediamine m. 311° instead of 202° as given by Green and Lawson (*J. Chem. Soc.* 59, 1017(1891)). A. A. Podgorny